MINISTRY OF EDUCATION AND SCIENCE OF THE REPUBLIC OF KAZAKHSTAN

L.N. GUMILYOV EURASIAN NATIONAL UNIVERSITY

INNOVATIVE POTENTIAL OF THE NATIONAL ECONOMY: THE IMPLEMENTATION OF PRIORITY

MONOGRAPH

Astana, Kazakhstan
2017

UDC **005.342(035.3)**
LBC **65.290-2**
I-64

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I-64 INNOVATIVE POTENTIAL OF THE NATIONAL ECONOMY: THE IMPLEMENTATION OF PRIORITY: [Monograph] / Under the general editorship of Raimbekov Zh.S., Rakhmetulina Zh.B. - Astana: L.N. Gumilyov Eurasian National University, 2017. - 255 p.

ISBN 978-601-301-923-9

The monograph covers theoretical approaches, concepts, analytical reviews, and practical solutions of urgent economic problems. Considered questions involve both state and economic governance. Special attention is paid to questions of innovations implementation and ensuring sustainable development and competitiveness.

The edition can be interesting to Kazakhstani and foreign scientists, heads and employees of state machinery, heads and employees of institutions and economic organizations, researchers, students, undergraduates and doctoral candidates of higher educational institutions in economic major.

Recommended for printing by Academic council of L.N. Gumilyov ENU, the protocol No.7 from 27 January 2017.

UDC **005.342(035.3)**
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ISBN 978-601-301-923-9

CONTENTS

INTRODUCTION

The collective monograph represents scientific researches oriented to the problem solution and determination of development prospects of modern society. The research of social and economic systems which are in an unstable condition by multidirectional actions of global factors and uncertainty is very difficult and requires considerable comprehension. It in many cases determines relevance and importance of the theoretical, methodological and practical development provided in the edition.

The monograph covers various aspects of the considered subject: theoretical approaches and concepts, analytical reviews, practical decisions in specific spheres of society's activity, right and economy. Considered questions involve both state and economic governance. Special attention is paid to questions of implementation of innovations and ensuring sustainable development and competitiveness.

The edition can be interesting to Kazakhstani and foreign scientists, heads and employees of state machinery, heads and employees of institutions and economic organizations, researchers, students, undergraduates and doctoral candidates of higher educational institutions in economic major.

Chapter 1 of the collective monograph is dedicated to study the concepts and theories of an innovation, topical issues of innovative development system of national economy which reflects purposes in the context of development of new principles, tools and mechanisms of ensuring innovative potential of national economy.

Chapter 2 is devoted to reveal major factors and mechanisms of innovative development of regional economy: assessment of innovative potential of transport and logistic system, reengineering for innovative potential, an entrepreneurship as a form of innovative activities organization, factors determining priorities of their further development and participation in innovative development.

Chapter 3 describes the condition, problems and development prospects of main sectors and sphere of the country's national economy in the conditions of industrial and innovative development caused by dynamics of the main macroeconomic indicators of economy industries, availability and nature of the factors determining priorities of their further development and participation in regional and world markets.

Chapter 4 review results of the research on problems and prospects of economy's sustainable development in the conditions of globalization and their managerial aspects.

CHAPTER 1. URGENT PROBLEMS OF INNOVATIVE DEVELOPMENT OF ECONOMY IN MODERN CONDITI

1.1. A CONCEPTION OF INNOVATION AND ENTREPRENEURIAL ECOSYSTEM AS A FRAMEWORK OF THE ASSESSMENT OF REGIONAL INNOVATION POTENTIAL[1]

1. Introduction

The economic development is a multifactorial fluctuation process of evolution and transformation of economic systems. Economic systems evolve according to the laws of nonlinear dynamics, which are being characterized by a change of the system status in the course of time and disruptions of the economic equilibrium. Disequilibrium seems to be a general form of organization of the economic system emerging under the influence of the external environment. Problems of nonlinear dynamics of economic systems revealed, for example, in the works of V. Zang (1999) and J. Forrester (1971, 2003).

In the current context of the global economic, political and financial instability, one of the most important strategic challenges that the emerging economies, including Russia and Kazakhstan, face, is to solve a problem of achieving the sustainable development based on innovation. The economic system is a complex probabilistic dynamic system that covers the processes of production, exchange, distribution, consumption, and accumulation.

Under current conditions, the sustainability level of any socio-economic system is determined by its ability to generate and accept various types of innovation. In this connection, especially important are the problems of forming and of effective functioning of innovation and entrepreneurial ecosystems, representing complex models of relations of economic agents which are involved in the creation and implementation of innovations and technologies.

The goals of the system's innovative development is determined by trends in the external environment and adaptive properties of the control object. An increasing number of components and connections of the system, and the increasing complexity of the institutional environment and infrastructure, result in a necessity to coordinate

[1] Authors: I.N. Dubina, David F. J. Campbell, Elias G. Carayannis, Anna A. Chub, Evangelos Grigoroudis, Olga V. Kozhevina

the interests and decision-making processes in view of the limited resources, the "gaps" in the basis and super-structuring of changes and mismatching expectations. Such solutions are called the compromise, and the management of the innovative development, in this case, is based on the principles of the system compromise and analysis of the agents' behavior that, in the end, is oriented toward an improving of the functioning of the economic system.

We assume that the formation of the optimal institutional environment, based on the principles of the *systems compromise* (systemic compromise) and serving as an adaptive mechanism of the spatial innovation and entrepreneurial ecosystem (SIEES), which operates under conditions of uncertainty of the environment, will contribute to a balanced development of the subsystems in the SIEES, by this increasing here stability and overall potential.

Issues about the development of innovative processes and the functioning of the innovation and entrepreneurial ecosystems are widely studied in economics and management sciences (e.g., Davey, 2014; Wessner, 2014; Lonsdale, 2013; Carayannis and Campbell, 2009; Carayannis et al., 2012, Campbell and Carayannis, 2016). Peculiarities of the functioning of national innovation and entrepreneurial ecosystems in both the developed and developing economies (economies-in-transition) have also been widely presented in the literature (e.g., Hemphill, 2006; Al-Fawzan and Al-Hargan, 2014; Schwartz and Bar-El, 2015). However, the aspects of the formation of an integrated innovation and entrepreneurial ecosystem, its conceptual framework, the role in the business environment and increases in the competitive sustainability of the economy still are not studied well enough.

The purpose of this chapter is to formulate some basic theoretical statements and methodological approaches to model the spatial innovation and entrepreneurial ecosystem under conditions of risk and uncertainty of the external environment.

Based on the above, the research being presented here has the following objectives: to determine the characteristics of the innovative business; to determine the mechanism of the institutional interaction of the entities in the innovation and entrepreneurial ecosystems in countries with economies in transition; to clarify the content and objectives of the spatial innovation and entrepreneurial ecosystem; to identify exogenous and endogenous factors defining the balanced development of the spatial innovation and entrepreneurial ecosystem vis-à-vis risk and uncertainty conditions,; and to determine the inter-layer systems compromise.

In the following sections of this chapter, we present a conceptual framework of this research, discuss the structure of a spatial innovation and entrepreneurial ecosystem (SIEES), formulate the principal directions and ways of improving regional and national innovation and entrepreneurial ecosystems by referring to a case study of the Russian SIEES, and provide a basic formalization and a game-theoretical approach for modeling of the interaction of key stakeholders in SIEES.

2. A Conceptual Research Framework

Considerations of the category "development" from the perspective of an innovative approach makes it possible to explain qualitatively new economic processes associated with the formation of innovation and technology platforms in order to accelerate the economic growth. Sources of the growth in the innovation and entrepreneurial ecosystem are not only the internal potential of the control system (resources and dynamic capabilities), but also external factors of development, in particular inter-regional and cross-sectoral economic ties and an active innovation policy, both at the national and regional levels, which is supporting high-tech industries and integration into the international market. In our opinion, the business climate and the entrepreneurial culture represent a crucial condition for attraction of investments for the innovative development and a rising of competitiveness of the countries with economies in transition. Studies of the institutional aspects of the economic development can be found in the works of T. Veblen (1923), R. Coase (1988), G. Myrdal (1939), D. North (1990), and K. Arrow (1962). The following Russian economists support the institutional approach: A. Auzan et al. (2009), O. Inshakov (2010), R. Nureev (2000), V. Tambovtsev (2006). Issues of sustainability, balance, and stabilizing of the development of the economy are being studied in the works of L. Walras (1874), J. Keynes (1965), A. Marshall (2006), I. Prigozhin and I. Stengers (1986), G. Soros (2001), L. Evstigeneeva and R. Evstigneev (2011). The problems of the innovative development in different areas and evaluation of the innovative potential of the enterprises are examined in the works of G. Mensch (1979), B. Twiss (1974), T. Hagerstrand (1968).

A fundamentally new type of economic relations has developed in most foreign countries - the economy of innovation, in which the sustainable economic and social development is provided by generating a different kind of innovation; the formation of a unified national innovation space; the transformation of the human capital into a factor and the purpose of an accumulation of the social wealth (Granberg and Valentey, 2006). In the industrialized countries, about 80% of the GDP growth is generated by the new knowledge implemented in the high-technology, information and communication systems, machinery and equipment, scientific organization of the production processes in the creation of a socially advanced society (Dubina et al., 2016). Competitiveness in the market is impossible without the introduction of new technologies, which become the main basis of production efficiency and the improving of product and service quality, and, thus, the key condition to improve the quality of life for people.

The concept of the "Triple Helix Innovation" (Triple Helix), describing the interaction of science, government and business in the implementation of innovative activities, can be considered to represent one of the first conceptual models of the innovation and entrepreneurial ecosystem (Etzkowitz and Leydesdorff, 1995). According to this model, the basis of the ecosystem is a multi-level and non-linear

interaction of science (universities), industry (enterprises), and the state (government). This concept reflects the "turn" from the dominant dyad "industry – the state" in the industrial economy to promoting the role of universities and "triple helix" interactions in the triad "science/industry/state", where universities manifest themselves not only as the "generators of knowledge" in the classic sense, but also as initiators of the innovation. The authors of this concept emphasized the "multi-layer networking" and a "mixed organization" in the innovation and entrepreneurial ecosystem. Later, the concept of the "triple helix" was expanded and altered by including a "civil society" with such elements, such as the mass media, cultural norms and values (Carayannis and Campbell, 2009). Adding the "fourth helix" was argued by the fact that the innovation and entrepreneurial ecosystems are influenced by the culture and values of the society, on the one hand, and methods of forming and broadcasting public opinion via communication media, on the other hand. As a "fifth spiral" the researchers also added the natural environment, changes which clearly impose effects on the IEES (Carayannis et al., 2012). The concept of the Quadruple and Quintuple Innovation Helix Systems is being graphically presented by Figure 1. This kind of development of the initial prototype model leads to the concept of the «N-component innovative spiral» (Park, 2014).

Allocentrism characterizes the intention to put oneself in other people's "shoes" to understand their motives and interests; focusing one's attention and acts on others in the first place. Nash equilibrium is such a strategic situation (configuration of the players' strategies), from which no player is interested to come out, that is, none of the players has no incentive to change the chosen strategy. John Nash, a Nobel Prize winner in Economics in 1994, proved mathematically that every game with a finite number of players and a finite number of strategies has a balance within the constellation property mentioned above. In practical terms, this means that if we have information about the incentives and other behavioral determinants of the players, we can determine their optimal (best) strategy in terms of the Nash equilibrium configuration (Dubina, 2016). In another work, Baniak and Dubina (2012) reviewed and discussed different applications of game-theoretic approaches, methods and models to analyze the innovation processes on three levels of innovation games: (1) intra-organizational games, which are played within the firm and main players are an innovator, a project manager and/or resource administrator; (2) inter-organizational games, where the main players are a firm and their competitors, partners and customers; (3) meta-organizational games, where the main players are a social planner and an innovative entrepreneur.

One of the new and advanced decision-making concepts, based on the game theory, is the principle of the system compromise. The compromise in its broadest sense means an agreement, based on mutual concessions, resolving some conflict and satisfying (all) parties to some extent. The concept and principle of the system compromise was first formulated (mathematically) by G. Algazin (1999). Application of this principle is aimed at a multi-criteria solution of problems of inter-level

conflicts in the socio-economic systems, where the members have incomplete and asymmetric information about multiple choices in decision-making.

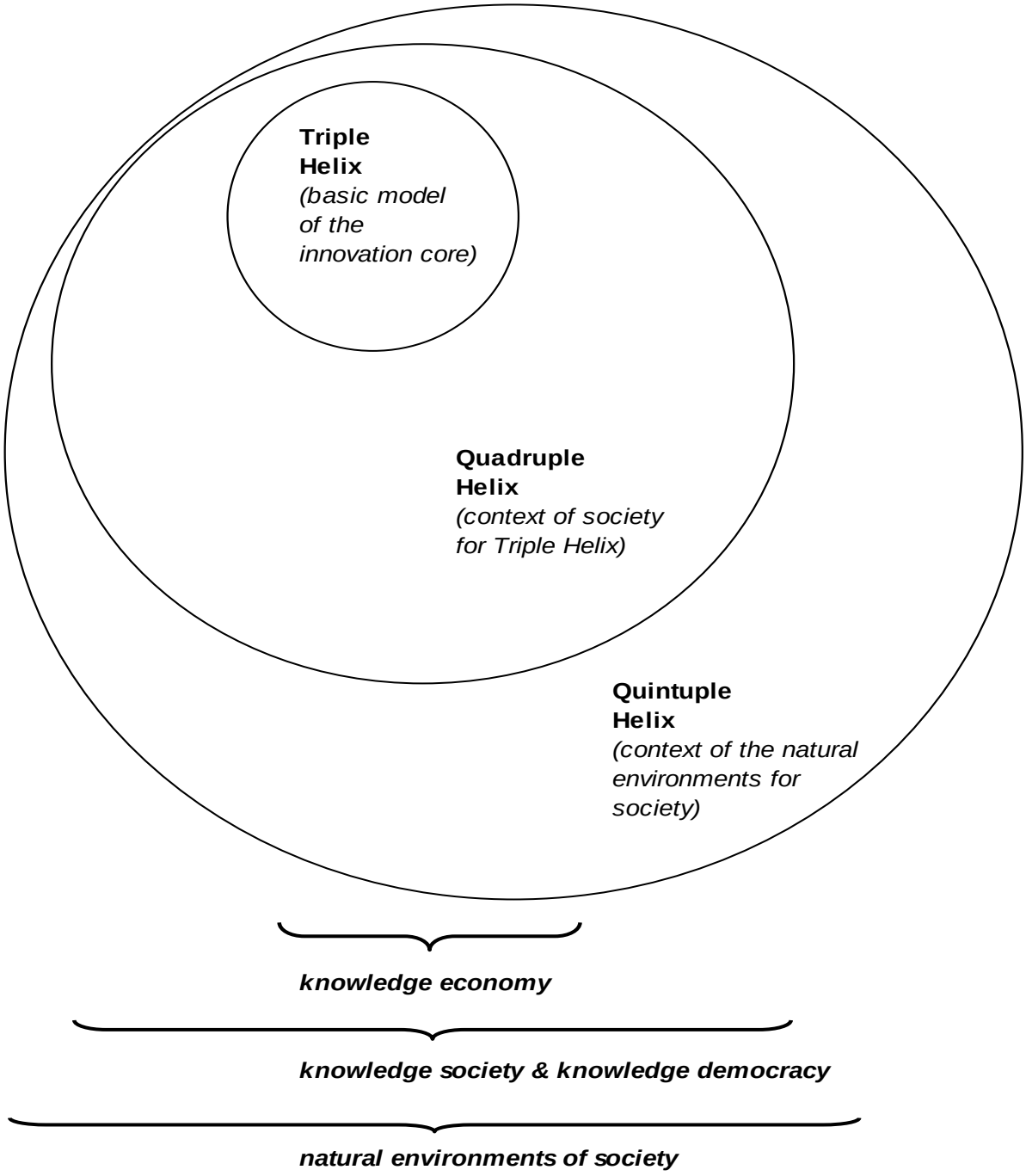

Figure 1- The Architectures of Quadruple and Quintuple Helix Innovation Systems

Source: Authors' own visualization based on Carayannis, Barth and Campbell (2012): https://innovation-entrepreneurship.springeropen. com/articles/10.1186/2192 -5372-1-2

A specific characteristic of this approach, in contrast to classical principles of game theory, is that along with many "local" strategic variables controlled by the individual members of systems, the "general" variables, which cannot be selected by any member of the system on the basis of the full power of an independent choice, are taken into account. Furthermore, the participants are asymmetrically informed about the set of "shared" variables and, in a general case, none of them have full information. This approach implies a necessity for information transfer and exchange at all system levels, expansion of the multivariate cooperation and coordination between all members, distribution and redistribution optimization of their powers, and resolution of the "intra-layer" and intrasystem contradictions. On the basis of this approach, "difficult conflicts" are considered, the resolution of which requires significant efforts and costs in terms of funding changes in the strategic paradigms and modes of operation. Surely, the spatial innovation and entrepreneurial ecosystem is a system that provides an actual application of the systems-compromise-principle for analysis, modeling, and design of its effective functioning. Being one of the options for modeling and implementing the system compromise, the SIEES (though not related to the basic concept of the system compromise) can also be considered as a solution of multicriteria tasks in accordance with the principle of Edgeworth-Pareto (Nogin, 2002; Voronin, 2009). Determination of a multi-criteria decision is inherently a compromise, and is based on the use of the subjective information. By using the selected information, a specific scheme of the compromise for this multicriteria problem is formulated, and the possibility of the solution is based on the hypothesis of the existence of a utility function.

3. Directions and ways of improving regional and national innovation and entrepreneurial ecosystems: the design of a case study on Russia

The inequality of economic development of different countries creates conditions for a change of the dominant technological structures and their transformation into new structures, where technology-related industries are replaced and where this process is being accompanied by a structural crises in the global economy and significant shifts in the international division of labor. The countries that are the first to form and develop a new technological mode have become active centers of capital mobilization and leaders in socio-economic development. The international experience shows that countries performing the timely innovative development of the human, scientific, technological and production potential in the upcoming trends of formation of a new technological mode, capture and secure new fundamental competitive advantages (Lonsdale, 2013, Sukharev, 2011). Implementation of these benefits allow countries, regions, industries or businesses to provide the leading economic growth in their areas. An integrated technology policy at the national level brings success to economic agents (Beketov, 2007).

International experience demonstrates that the speed of the transition to a new type of social reproduction and efficiency in innovation economy are determined, first of all, by the intensity of the development of innovative processes, the formation of an adequate institutional framework and a planning of innovative developments at the territorial level (Mian et al., 2012).

Technology strategy is based on strategic analysis and planning, forecasting and management by objectives and suggests furthermore the following algorithm:

1) strategic goal-setting;
2) preparation of alternative managerial decisions;
3) formulation of a set of indicators for the innovative development;
4) situational forecasting;
5) evaluation of the potential of the achievability of the target values;
6) formation of a roadmap for a given strategic plan;
7) choice of an optimal roadmap of the economic development.

In this context, the main strategic priorities of a regional or national policy of developing an innovation and entrepreneurial ecosystems are creating national competitive advantages in the field of education and research, preservation and strengthening of the human potential, reproduction of the social and intellectual capitals (and sources and resources), reducing information gaps on the territory, improving the quality of the public administration, production and compliance with environmental standards, and the development of technological systems in key sectors (clusters) of industrial growth.

As an example, the tasks of the state strategizing (strategic planning and forecasting) of the innovative development of the Russian economy are currently being solved under the conditions of economic constraints and sanctions. A difficult economic situation in the short term should not transform long-term goals, but, on the contrary, contribute to the increase of the quality requirements to the socio-economic development of Russia.

In particular, one of the main problems of the innovative development of the Russian economy is that the structure of the Russian sector of R&D (research and experimental development) does not fully meet the needs of the growing demand from a number of segments of the business sector for advanced technologies. Unfortunately, certain scientific results of the international standard proposed by the Russian R&D sector are not implemented in the Russian economy due to the imbalance of the national innovation system. In addition, the business sector is dominated by the backward technological modes, the companies' susceptibility level to the new technological solutions remains low, while a significant number of companies perform innovative activities situationally. The resources of the business sector are focused mostly on the purchase of the imported equipment, and the knowledge proposed by the R&D sector is in greater demand abroad. Capitalization of a high intellectual resource occurs mainly outside Russia, and significant resources of the business sector are excluded from the processes of the reproduction of the

domestic R&D sector. A mechanism of the public-private partnership providing interaction between the business and the state in defining the strategic priorities and the order of the mutual funding of the R&D is a tool for solving these problems.

Unfortunately, at the moment, it appears to be quite difficult to talk about the significant practical results achieved in the field of the innovation development of the Russian economy.

The studies, conducted by Russian economists, such as A. Granberg and S. Valentey (2006), E. Buchwald (2008), S. Glazyev (2008), D. Sorokin (2009) and others, suggest that the transition to the innovation economy and the provision of the sustainable trends in the socio-economic growth, while maintaining a low level of the innovative activity of the organizations and the inequality of the innovative development of the territories, is difficult.

4. Hierarchies and complexity in innovation and entrepreneurial ecosystems

The importance of studying the complexity of the IEESs is justified by the numerous approaches of national, regional, and sectoral innovation systems at the macro, meso, and micro levels. For instance, Carayannis and Provance (2008) propose a composite indicator approach for the study of innovation at the micro level pivoting around the 3Ps (Posture, Propensity, and Performance), while Carayannis et al. (2015, 2016) propose a framework for estimating national and regional innovation efficiency based on mathematical programming techniques. It is widely accepted that innovation is also a multilevel concept, since national and regional IEESs coexist and coevolve. As noted by Carayannis et al. (2015), national innovation systems form the framework where a country's innovation is produced, while regions may follow different regimes and exploit innovation inputs in a different way. Each region has its own assets, strengths, competitive advantages, and capabilities. However, each national or regional innovation strategy should share some important common features that form the overall national contextual environment where innovation takes place.

In addition to the aforementioned hierarchy, the complexity of the IEESs is increased, considering that it should not be evaluated as a single input-output activity (Tidd and Bessant, 2009). Studying separately innovation inputs and outputs may give misleading results (Carayannis and Provance, 2008; Cruz-Cázares et al., 2013). Numerous researchers, following Schumpeter's (1934) definition for innovation, consider a knowledge exploration (recognition and development), and a knowledge exploitation (production and commercialization) stage. In this context, knowledge creation is a necessary, but not a sufficient condition for developing successful market products and creating commercial value of innovation investments.

Adopting the existence of a complex knowledge production function in the innovation process, other scholars study not only the process of creating and

disseminating knowledge, but also the creation and exploitation of skills, new technologies, and material products (such as the Mode 3 knowledge production system discussed in Carayannis and Campbell, 2009). Given the existence of several involved actors, (universities, research institutions, business enterprises, governmental organizations, etc.), innovation should be considered as an interactive, networking and collaboration process (Zhang, 2013).

Since the innovation process is intrinsically contextualized into and interwoven with an innovation environment, in many cases the effects of innovation environment factors on IEESs are studied. The Quadruple and Quintuple Innovation Helix Systems may provide a theoretical framework for understanding the operation of a national or regional innovation system and facilitating innovation policymaking.

In several studies, the complexity of the IEESs is studied using advanced quantitative techniques, like simulation, which is also able to consider the dynamic nature of the examined systems. In this context, Carayannis et al. (2011) propose an agent-based simulation methodology in order to examine the roles of knowledge acquisition and transformation in regional sustainability of new venture formation. Their results reveal that competing entrepreneurship perspectives of knowledge spillover and network-based new venture formation coexist and even interact.

Similarly, Carayannis et al. (2016) validate the concepts of strategic knowledge arbitrage and strategic knowledge serendipity (SKARSE™) through an agent-based simulation model. These concepts have been proposed by Carayannis (2008) in order to extend the support for more tightly coupled relationships between value recognition and both knowledge acquisition and knowledge transformation in the absorptive capacity model.

In the previous simulation models, the agents participate in a complex innovation system within local, interconnected neighborhoods. These neighborhoods are computationally defined as lattice points on a torus-shaped lattice structure. Since, conceptually, the lattice points depict regional innovation systems, the entire lattice structure models a global innovation system connecting multiple regional innovation systems, across which institutional practices, organizational resources, and market structures vary (Carayannis and Campbell, 2009). Complex systems are distinguished by stocks of resources possessed by agents and interactions between them that generate flows of these resources in the system.

Consequently, the aforementioned research efforts, using complex system approaches and simulation tools, try to gain insights into IEESs and explore the effects of interactions between the different actors or processes, such as the external knowledge acquisition actions of new ventures and the impact of these actions on regional sustainability of entrepreneurship. As noted by Carayannis et al. (2016), simulation results reinforce elements of regional theory on entrepreneurial activity, but also contribute to advances in the field by revealing complexities associated with the development of institutions to spur economic development through entrepreneurship

5. The concept of a spatial innovation and entrepreneurial ecosystem

Being supporters of the analysis of the problems of the economic development from the standpoint of the nonlinear dynamics, some authors (Kozhevina, 2012; Chub, 2010) suggest that by referring to key elements of the innovation and entrepreneurial ecosystem concept, this can offer a perspective how to address and solve the problem of the sustainable development (as was already discussed in the previous section).

When we study any type of a complex dynamic systems (biological, social, economic, etc.), one structural key feature relates to relative stability. At the same time this relative stability is not seen as a stability of the equilibrium structures such as, for example, in crystalline formations, but as the "preservation in the change", that is the dynamic stability of an open systems, achieved through information exchange.

The above mentioned view is derived from the premise that an absolutely stable system is not able to develop. Therefore, for the transition to a new structure, a system must become unstable at some time. However, the permanent instability is the other extreme, which is also harmful to a system, as well as "hyperstability", because this may eliminate the "memory" of the system (inheritance), which is an adaptive securing of the vital characteristics to survive in this environment. To develop as a sustainable system can mean to be capable to become unstable for some time under the influence of disturbances, leading to the appearance of some new features in the system. It is in an unstable equilibrium state that makes the system to become self-organized, and the processes of self-acceleration are activated in response to the change and adaptation through the deployment of a "positive feedback loop" (Kozhevina, 2004, 2015).

Thus, "development through instability" provides stability at a higher level, because the system structure, treated as a form of "inheritance", is able to maintain its identity and, at the same time, to adapt to the changes and impacts of the new conditions.

Currently, propositions and implications of this concept are being widely used in the western countries (see for example, Moore, 1993; Jackson, 2011). However, Russian researchers generally consider these in relation to problems of the innovation activities at universities (Kizeev, 2013; Ivanova, 2012; Moshkin, 2014).

In addition, prospects for the application of this theory as a conceptual basis for the formation of the innovation and entrepreneurial ecosystem at a territorial level are only studied insufficiently, and this explains the actual status of research in this field.

In our opinion, the application of the innovation and entrepreneurial ecosystem concept at the level of a territory (region or country) could be performed in the following way. *The spatial (regional or national) innovation and entrepreneurial ecosystem (SIEES) is an open complex dynamic system with a framework, where a specific institutional environment of an innovative type is formed, and which takes*

into account the national (regional) economic interests and contributes to the activation and enhancement of innovations, technologies and human capital.

The following exogenous and endogenous factors for a balanced development of SIEES can be considered, while Russia may define a possible case for further testing and evaluation:

1. Direct state support and innovation management at the macro level
2. Preferential advantages at the early stages of the business founding
3. Support for R&D and innovative entrepreneurship in the framework of public-private partnership
4. Insurance of financial risks
5. Exemptions for investors (business angel investors)
6. Legal "field" for start-ups
7. Self-organization of the processes and relationships
8. Development of the business competences
9. Modeling of decision-making in the business system
10. Coordination of governance that focus on supporting sustainable development

These factors may also serve as strategic policy measures. Innovation ecosystems become and represent an important context for the improvement of efficiency of the business (Carayannis and Campbell, 2009). Business entities face a set of problems associated with the necessity to balance the goals and priorities set by key players of the ecosystems with the objectives and priorities of a new enterprise. In order to balance the requirements established by the innovation ecosystem with the objectives of the business enterprises, it is important for the entrepreneurs to focus on the self-regulation processes and their understanding of the potential role in these processes (Twiss, 1974; Nambisan and Baron, 2013).

We represent *the sustainable development of the SIEES* as a process with a progressive momentum and movement, where on the basis of organizational and economic relations among economic entities, the specific institutional environment with adaptive potentials is being formed, allowing to maintain a balanced relationship between the research and business subsystems under dynamic conditions.

The structure of the proposed spatial innovation and entrepreneurial ecosystem can be represented as follows (see Figure 2):

Within the SIEES structure (see again Figure 2), the "innovation subsystem" places more in context of the "knowledge society" (with a more crucial role for civil society in reference to the the so-called Quadruple Helix, as is being seen by Carayannis and Campbell, 2009), while the "entrepreneurial subsystem" locates more within context of the knowledge economy.

The institutional environment of an adaptive type is an ordered set of institutions, organizations and their relations, forming the institutional area of the regional innovation and entrepreneurial ecosystem. This also depends on the influence of the processes of internal integration of economic agents and exogenous

factors, where, on the basis of the incentive system and regulation mechanisms, the leveling of the functional and information disunity of the ecosystem elements is being addressed, as well as the orientation of its movement into directions of sustainable development with the support of:

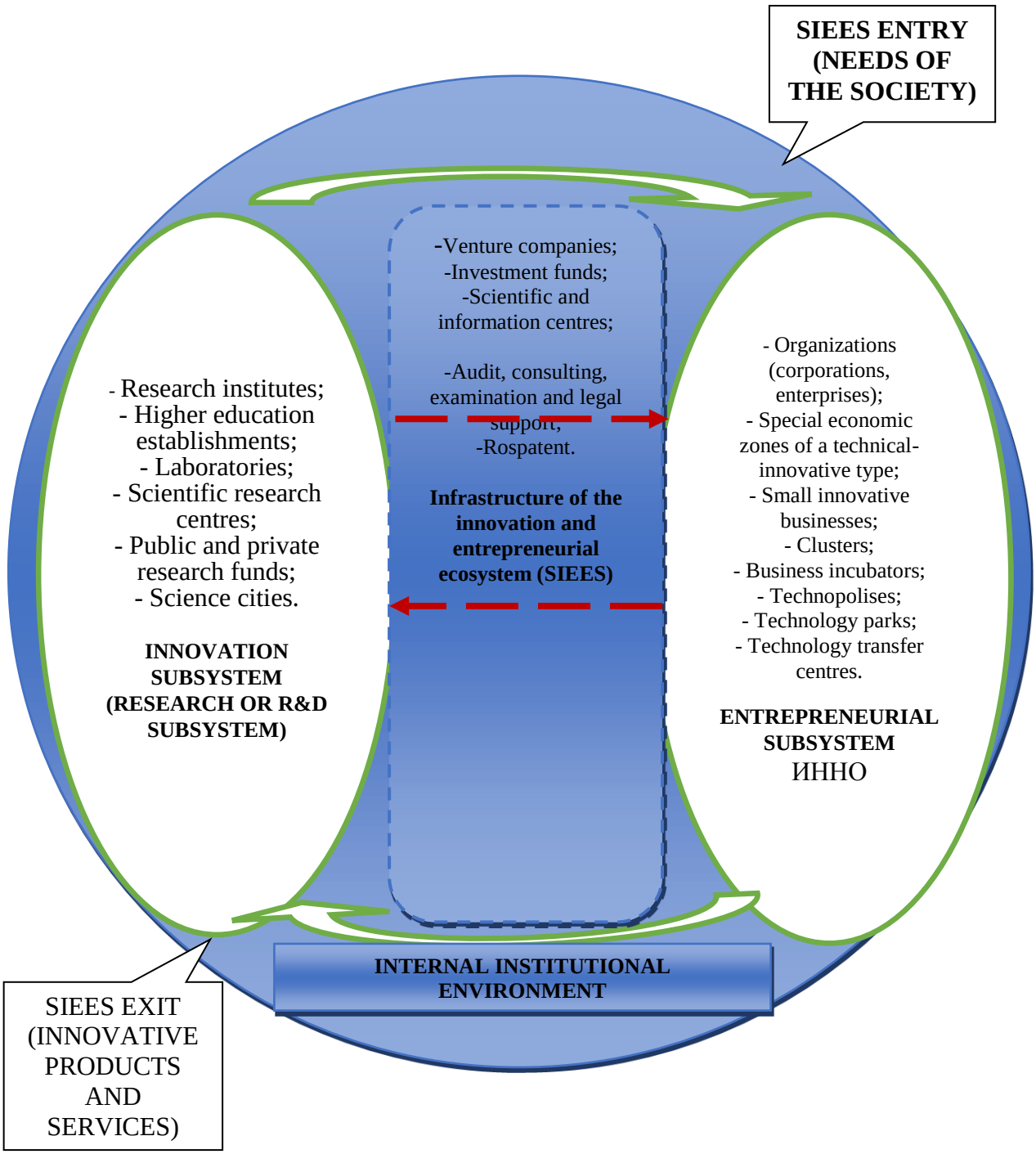

Figure 2- The structure of the spatial (regional and national) innovation and entrepreneurial ecosystem (SIEES)

Source: Authors' own vizualization based on Dubina et al. (2016)

– the formation of incentives for the integration of organizations in the research and business subsystems;

– the stimulation of innovation activities of the economic agents.

The structure of the internal institutional environment includes: (1) formal institutions (legal norms), among which there is also a hierarchy, ensuring the consistency and unity of the legal framework of the state; (2) informal institutions, established as a result of a long-term process in the social evolution, and existing in the form of moral convictions of citizens and the entrepreneurship culture; (3) bodies of the public coercion and control represented by the judicial system, law enforcement agencies and social organizations; (4) infrastructure organizations; (5) communication channels that are real or virtual lines of communication, and institutional networks, with the help of which the information traffic among the elements of the regional ecosystem is performed (Chub, 2012).

We believe that a *cumulative potential of the spatial innovation and entrepreneurial ecosystem* includes potentials of the following elements: (1) production and technology; (2) human resources; (3) information; (4) investment; (5) research and technology; (6) institutional (organizational and managerial); (7) entrepreneurial; (8) marketing; (9) R&D commercialization.

Due to the heterogeneous environments and the SIEES subsystems and the differences in interests and objectives of their entities, the successful implementation of the total potential is possible on the basis of a system compromise or "systemic compromise". So, in the following section we provide an attempt to formalize the interactions of the key stakeholders of an innovation and entreprenerial ecosystem in order to model and analyze such interactions with tools of methods of game theory and the theory of business simulation games.

6. A Basic Formalization of the Innovation and Entrepreneurial Ecosystem and a Business Simulation Game

A basic formal game-theoretic model about the interaction among the main SIEES agents was developed to find possible implementation variations of the systems compromise in the spatial innovation and entrepreneurial ecosystem. It was based on the concept of the "triple innovation helix" (Etzkowitz and Leydesdorff, 2000), with the addition of investors and direct consumers of innovations. A corresponding business game "Lab to Industry" was developed to train, simulate and analyze ways and possibilities of interaction of the SIEES agents on a multilateral basis through a multi-level communication system to arrive at a compromise under risk and uncertainty conditions.

The main goals for the creation and conducting of the game named "Lab to Industry" are the following:

1) to create a game educational platform for understanding the actions of the main participants of the innovation process (the government, universities,

businesses, investors, consumers of innovation), who are able and must cooperate to reach a compromise in the interests through an effective dialogue in the entrepreneurial and innovative environment, involving risks and uncertainties;

2) to develop a modeling tool for the decision-making process of the main interested players under the conditions of risk and uncertainty, due to the analysis of possible strategies and development of new combinations of strategic decisions in the process of interaction among the participants of the game, to determine the optimal or sub-optimal ("near-optimal") strategies of the universities to promote and implement their research projects;

3) to prepare a platform for the interaction among the real participants of the innovation process and to develop an effective strategy and tactics for their actions.

The members of the business game are:

- The state (the IEES regulator, initiator of the project and investor): 1 group;
- Universities (the initiator of the project, researchers, technology developers): 2-4 groups;
- Entrepreneurs (innovators, implementing projects): 2-4 groups;
- Investors: 2-4 groups;
- Consumers of the innovations (consumers of the innovations; investors): 1 group.

There is a pool of investment projects (requiring R&D, mass production and reproduction, and commercialization), characterized by the expected costs and profitability. Each group of the participants has certain resources. The group members can manage a part of the resources on their own, while the other part is managed in coordination with some other participants. Each group can interact with other groups. The results of this interaction determine the choice of the projects and the success of their implementation. In this game there is both, cooperation and competition. The aim of each group is to select the best solution to meet their own interests, but taking into consideration the needs and motivations of other players (a game-theoretic principle of allocentrism). A mathematical formalization of this game is presented in the Appendix.

Based on this formalization, the results of all the players can be calculated in accordance with their "objective" functions. More information about the formalization and rules of the above mentioned game are presented in further publications (Dubina, 2015).

With the help of this game approach it becomes possible to analyze the behavior of all of the SIEES participants under different sets of base values and conditions. In the end, we arrive at a large number of possible situations and we can demonstrate the results of any decisions made by the players.

This game was developed at the Martin Luther University (Halle, Germany) as part of the academic mobility program DAAD (the German Academic Exchange Service), and it was later tested in student groups at the Altai State University

(Barnaul, Russia). A pilot game with representational players corresponding to real participants of the innovation and entrepreneurial ecosystem was organized and conducted in the aftermath with support of the IREX at the Bauman Moscow State Technical University and the Skolkovo School of Management (in May 2015). In particular, the pilot game clearly demonstrated a significant communication barrier among the main participants of the SIEES, their reluctance and unwillingness to achieve the systems compromise. Apparently, this identifies a common problem not only for the Russian SIEES, but also for a number of other emerging economies. The developed game can serve as an effective "tool of allocentrism" for better understanding the motives, interests and possible strategies and ways of interaction among the participants of a SIEES and, thus, achieving the systems compromise in a SIEES as a multi-agent, multi-interest and multi-goal hierarchical system.

7. Conclusion

In this chapter we formulated a conception of the spatial innovation and entrepreneurial ecosystems (SIEES), and we discussed its structure and possible directions, as well as possible ways for developing and improving its functionality. In particular, we discussed the possibility and feasibility of applying the principles of the systems compromise for the analysis, modeling, and design of SIEES, which are multi-level, complex, dynamic and multi-modal systems, including the complementary and mutually reinforcing innovative institutions and clusters. We indicated potentials of the SIEES and came to the conclusion that due to the heterogeneous environments and subsystems of the SIEES, and differences in interests and objectives of the agents, the successful implementation of this potential is possible only on the basis of a systems compromise.

Due to the structural and functional complexity of the spatial innovation and entrepreneurial ecosystems, the interaction of the main participants (agents) and elements (institutions and clusters) is also very complex and nonlinear. In this context, it may be appropriate to refer to formal and partially formal methods to study and design the innovation and entrepreneurial ecosystem. More particularly, in this article, we presented the experience of the game-theoretic formalization of the SIEES and simulate the interaction of its agents with the help of business management games.

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Appendix

Technically, the game "Lab to Industry" is defined by the following input parameters:

- n is the number of players (groups);
- Ri is the amount of resources available to player i, i = 1, ..., n;
- m is the number of the innovative projects in the game;
- CDminj, CDmaxj are the minimum and the maximum development costs, respectively, of innovative project j, j = 1, ..., m;
- CIminj, CImaxj are the minimum and the maximum production and sales costs, respectively, of innovative project j;
- ERj is the expected revenue from project j;
- α is the investment return from a risk-free project.

In real world situations, the innovations are accompanied by risk and uncertainty. This game simulates the risks and uncertainties considered at all phases by using a set of random variables (μ, φ, ξ).

The decisions of the players are the following:

- Xij are the resources allocated by player i to develop project j, i = 1, ..., n, j = 1, ..., m;
- Yij are the resources allocated by player i to implement project j, i = 1, ..., n, j = 1, ..., m + 1, where Yim + 1 are the resources allocated by player i to the riskless project.

The output parameters of the game are as follows:

- FDj = ΣiXij are the resources to develop project j;
- pj is the probability of the successful development of project j, 0≤pj≤1, pj = (FDj-CDminj) / (CDmaxj-CDminj);
- μ is a random value obtained by using the uniform distribution in [0, 1], 0≤ μ ≤1; when μ≤p the project can be successfully developed and has the potential to produce a result for the investor; if μ>p, the project cannot be developed and the investor will not receive profits from the project;
- Fj = ΣiYij are the resources to implement project j j;
- qj is the probability of the successful implementation of project j, 0≤qj≤1, qj = (Fij-CIminj) / (CImaxj-CIminj);
- φ is a random value obtained by using the uniform distribution in [0, 1], 0≤ φ ≤1; if φ ≤q, the project is successfully implemented and brings income to the investor; if φ>q, the project will not be implemented;
- ξ is a random variable, which characterizes a commercial success of the implemented project; it may be obtained by using the uniform distribution in [0, 1], the standard normal distribution, etc.;
- RRj is the real income received from project j, and may differ from the expected income (ERj); for example, if ξ is generated by the uniform distribution in [0, 1], 0≤ξ ≤1, the result can be calculated as RRj = ERj x (1,5 ξ), and, in this case, the real income may differ from the expected return by the value of 50% upward or downward;
- NRi = Yim + 1 (1 + α) is the income of player i from investing in the risk-free project;
- TRI = ΣjRRj is the total income from venture capital (innovation) projects;
- TR = TRI + ΣiNRi is the total revenue in the game (GDP).

1.2. TOPICAL ISSUES OF NATIONAL INNOVATIVE SYSTEM DEVELOPMENT IN KAZAKHSTAN[2]

National innovative system forming is in the spotlight of all countries considering availability of correlation dependences between innovation of national economy and a welfare of citizens.

In J. Schumpeter's, M. Abramovits', Lin Su Kim's, H. Niozi's works is specified that long-term economic success of national economy is directly connected with its innovative nature. Concepts of innovative systems appeared in the West countries in 80s and were actively developed in 90s of last century by such scientists as: Arundel, Cooke, Edquist, Foray, Freeman, Galli, Hamalainen, Johnson, Malmberg, Maskell, Metcalfe, Saviotti, Schienstock, Soete, Teubal and others. K.Freeman and B.Lundvall are developing the national innovative system theory. According to OECD the national system of innovations includes set of the networks connected in such a way that creation and dissemination of technologies and their transformation into commercial products depends as much on the viability of a complete set of interconnections, as well as the individual performance of any element of the system.

Today the term NIS is interpreted by authors in different ways though practically all definitions include the general basic elements. Despite a big variety of the researches devoted to NIS there is no conventional definition of this concept yet. Let's give some definitions of NIS (see Table 1)

The existence of various definitions of NIS says that unified point of view on the NIS nature, structure and functions which largely determined by national peculiarities isn't yet developed. So, for example, in the USA the innovative system is understood in a confined sense as the scientific and technological system including, first of all, the institutions generating new knowledge – universities, research laboratories, high-technology corporations, innovative business. The European school understands the term "innovative system" in a broad sense not only as a production, but also as dissemination, aquisition and use of knowledge through the training processes proceeding between economic actors, experimentation and improvement of technologies and products in the course of their use.

Currently B.-A. Lundvall attempts to unite two described above approaches as two complementary subsystems of NIS within the BRICS project (Brazil, Russia, India, China, the South African Republic) by comparative studying NIS in these large developing economies. Besides, concepts of regional innovative system and sectoral innovative system, and also supranational innovative system and global innovative system are widely used recently. The innovative system can be supranational in several meanings – as really global, covering majority of the countries of the world or as the including part of world space (for example, the European Union). Besides, the new direction of the NIS analysis – studying NIS in dynamics as process of gradual

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transformation of one complex of institutions to other one or as process of radical institutional changes, and also understanding of innovative system as one of subsystems of national economy along with other subsystems, such as a production system, a financial system, the labour market or system of industrial relations is offered.

Table 1. Basic definitions of the national economic system

Author	Definition of NIS
B.-A.Lundvall (1992) [1-3]	The system of innovations is created of elements and the relationships which interact in production, distribution and use of new and economically useful knowledge … the national system includes the elements and the relationships located within the boundaries of the national state
K.Freeman (1987) [4-5]	Network of institutions in public and private sectors as a result of activities and interactions of which new technologies are created, imported, modified and spread
R.Nelson (1993) [6]	It is a set of institutions, interactions of which determine innovative activities of the national companies
Patel and Pavitt (1994) [7]	National institutions, their systems of incentives and competencies which determine the degree and directions of technological training (or the activity generating changes) within the country
S.Metcalfe (1995) [8]	A set of various institutions, collectively and individually making a contribution to development and dissemination of new technologies and creating a framework in which the governments create and realize policy of influence on innovative processes. As such, it is a system of the interconnected institutions for creation, storage and transfer of knowledge, skills and tools determining development of new technologies
N.Ivanova (2001) [9]	The national innovative system is a set of the interconnected organizations (structures) occupied with production and commercial implementation of scientific knowledge and technologies within national borders (small and large companies, universities, laboratories, technology parks and incubators). At the same time NIS is a set of the institutions of legal, financial and social nature which are providing innovative processes and having strong national roots, traditions, political and cultural characteristics
Golichenko O.G. (2006) [10]	NIS is a set of national state, private and public organizations and mechanisms of their interaction within which activities for creation, storage and dissemination of new knowledge and technologies are carried out

The main objective of innovative system - to make a contribution to creation of economy surplus by producing knowledge which is especially useful for modernization and renewal of production systems, products, services, and processes. A capability of innovative system to perform the modernizing function also depends on positive impacts of its environment, such as an education system, science, legislation or culture. It is possible to conclude that for the proper analysis of the innovative system we shall understand it as an open system closely connected with several other systems.

Usually the research of innovative system is determined on a geographical scale. At the beginning innovative systems were characterized in national limits, reflecting climate of the middle of the 1980s. Nevertheless, the increasing number of scientists claim that due to the growing globalization of engineering and other industrial and economic processes, importance of national specific factors in technology development decreases. The national state rapidly becomes unnecessary as traditional national borders of innovative systems almost disappear.

Nevertheless, it is obvious that organizational and institutional distinctions among the countries play an important role in forming scientific and technical progress (Lundvall 1992, Nelson 1993).

At the moment there are three main interpretations of the NIS concept.

The first consists in consideration of NIS as sets of institutions activities of which are directed to generation and diffusion of innovations. This definition reflects that innovative processes are shown directly in economic practice. The main emphasis of this concept lies in the plane of commercialization, practical return from science as emergence of a new product is connected with joint operation of a set of business entities.

The second concept interprets the NIS as a complex of the integrated economic mechanisms and types of activity providing innovative processes. This definition is more functional as it emphasizes dynamism of interaction of subjects of NIS, transition to nonlinear model of an innovative cycle, leaving in a shadow driving forces of innovative processes.

The third point of view interprets the NIS as the part of a national economic system providing organic incorporation of innovative processes in progressive development of economy and society. This concept suggests that creation of formal innovative structures in itself doesn't guarantee success of innovations. Forming the adequate economic atmosphere, and social climate, favorable for innovations, is necessary. It separately forces to speak about availability of the special institutional conditions necessary for development and successful functioning of NIS.

The national innovative system is a developing set of the interacting subjects of the state and non-state sectors of economy performing innovative activities on the basis of the created economic and institutional mechanisms. The national innovative system combines efforts of the state, the organizations of scientific and technical and educational spheres, a business sector of economy, the financial and credit sphere, the

state structures and non-governmental institutions of the innovative sphere for the benefit of the accelerated implementation of results of intellectual activities in the market of high-technology knowledge-intensive products and on the basis of equal partnership forming between the subjects of innovative activities.

For NIS as a complex structured organizational and economic subsystem of the national economy reflecting the peculiarities of its technological development, institutional, social, and economic conditions of its functioning in macro, meso, and micro levels of economy, characterized by some general imperatives of organization and development, namely:

- development of variety of forms and expansion of "integration field" of resources of science, education, production, market infrastructure;
- strengthening of a role of the state and its resources in forming and development of NIS in strategic directions of national value;
- growth of level of innovative orientation of investment resources and investment process;
- expansion of a role of regions, local territorial and economic systems in resource providing NIS.

The most simple model describing interaction of the NIS elements shows that the role of a private sector is in development of technologies on the basis of own researches and in market implementation of innovations, a role of the state - in assistance to production of fundamental knowledge (at the universities) and a complex of technologies of strategic (military) nature, and also in creation of infrastructure and favourable institutional conditions for innovative activities of private companies. Within this general model national peculiarities of NIS are created: the greater or lesser role of the state and a private sector in accomplishment of the specified functions; relative value of large and small business; ratio of basic and applied researches and developments; dynamics of development and industrial structure of innovative activities.

The most important characteristics of the NIS essence are: interaction between subjects of innovative activities; cross-cutting and multi-level nature; includes a number of the interconnected constituting elements; the crucial role in its forming and development belongs to the state; is a component of an economic system of the country and carries out a link role between macroeconomic policy, science, education, the knowledge-intensive industry and the market; it is directed to achievement of strategic objectives of a macro system, subordination of all stages of innovative process; the produced knowledge, technologies, innovations within the NIS are to be competitive both domestically and on the world market.

The elementary model describing interaction of the NIS elements comes down to the fact that the role of a private sector consists in development of technologies on the basis of own researches and in market implementation of innovations, a role of the state – in assistance to production of fundamental knowledge and a complex of technologies of strategic nature, and also in creation of infrastructure and favourable

institutional conditions for innovative activities of private companies. Various options of implementation of this model in the conditions of social and economic development of the certain countries also create national peculiarities of innovative systems.

On the basis of analysis and synthesis of researches of domestic and foreign economists of innovative system and structure elements, it was offered to include in the NIS: 1) priorities and strategy of innovative policy; 2) a legal framework in the field of development and stimulation of innovative activities; 3) innovative infrastructure; 4) system of generation and dissemination of knowledge; 5) the innovative entities, including large scientific and industrial corporations, high-tech industrial production; 6) institutions in education and professional training: training on the organization and management in the innovative sphere; 7) the market conditions promoting implementation of innovations; 8) marketing and financial components for creation and promotions of innovations, systems of promotion and financing of innovations; 9) interaction with the international environment; 10) the mechanism of innovative development reflecting system of relations between above listed elements.

Except the specified elements, it is necessary to consider the set of social, political, cultural and international factors which exert direct impact on dynamics and nature of innovative system development within national boundaries. It seems that the specified set of elements is necessary and sufficient for development of NIS as the exception of any element of system leads to a gap of innovative process, therefore, making impossible the entire system functioning. All elements are equivalent in the course of forming and development of NIS. Elements of the innovative environment exist not separately from each other, they are in close functional interdependence. Strategic management of NIS is exercised by change of external parameters values of which are determined within macroeconomic policy, and mechanisms of their achievement are established legislatively.

Though national innovative systems quite strongly differ from each other in details, they have common features and the basic structure necessary for their functioning which includes set of interacting units. As a rule, there are five or six such blocks:

I. The creative block, or the block of knowledge generation (the universities, scientific institutions, complex social networks providing informal interaction of researchers from different institutes and universities).

II. The block of technologies' transfer (different intermediaries, including the noncommercial funds of professional examination forming a special environment with the broad network communications capable to provide contacts of authors of the creative ideas with potential buyers).

III. Financing block. Transformation of the idea into a prototype (phase of engineering development, production of a prototype, creation of a pilot prototype) and its subsequent start in mass production requires external financing.

There are three potential sources of such financing.
1. Bank loan. The author of the idea or the organization supporting him creates the company for production of a new product and takes a bank loan.
2. Sale of an innovation. The author of the idea sells it to one of the major companies making a similar product. This method of financing, saving the innovator from risk, at the same time deprives him of profit connected with implementation of the created by him innovation in production.
3. Venture funding. On the basis of studying of the offered innovation and the business plan constituted by the innovator, the venture capital company creates the entity which head usually is an innovator. At the same time the venture capital company reserves complete control over activities of this entity and in case of its insufficient profitability can sell it.
IV. Production block. Two alternative options of the implementation of innovative production are possible. The first — inclusion of such production in production structures of one of major companies that allows to use benefits of vertical integration and to reduce transactional expenses by eliminating an independent managerial complex (bookkeeping, personnel accounting system, etc.). The second — creation of the new entity where production transactional expenditures are minimized due to its small size.
V. The training block, including innovative managers (universities, and also the institutions focused on forming scientific personnel, national engineering schools) [11].

Innovative infrastructure of Kazakhstan includes:
1) Institutes of development
2) Design offices
3) Science and technology parks
4) Special economic zone

Currently 8 regional technology parks work in regions, with a total occupancy area of 87,3%, including the share of the innovative companies constituting more than 50%. The branch design offices transferred documentation and mastered the production of the 197 products, and sold it in the amount of 6,190,045 thousand Tenge. For all the time of existence of the international centers of a technological cooperation 29 joint projects were realized, and currently 14 are being implemented.

The public-private partnership acts as one of the main organizational and economical mechanisms of innovative activity stimulation in the country, attraction of long-term investments. Now in Kazakhstan "Kazakhstan Center of Public-private Partnership", JSC is created.

In the scheme of public-private partnership the important part is assigned to the entrepreneur. He is to be interested in development and deployment of innovations at his entity. Innovative activity of domestic enterprises for the present remains at a low level. The state needs to accept system of measures for motivation increase in private business, its involvement in innovative process. It is necessary to accept measures for

stimulation of private investments inflow, creation of tax benefits as for the investors financing Research and Development and for the companies implementing domestic technologies; to legislatively fix system of tax benefits for customers- investors. At present certain tax benefits for the scientific organizations are created in the country. But today it is important to stimulate not only the offer of research services, but also demand for them from a private sector. Today there are practically no tax incentives for increase in demand for science, those privileges that are declared in the Tax Code, don't work due to the lack of the mechanism of tax administration.

The privileges which are available in the Tax Code assume compensation only on the corporate tax in the amount of 7,5% of expenditures for Research and Development and actually don't work due to the lack of accurate procedures of tax administration. In foreign countries effective practice of tax incentives is created. For example, deductions of expenditures for research and development from the taxable income constitute in the USA 16%, in Canada and Singapore this indicator can reach 100%.

In Kazakhstan according to statistics science funding by a private sector doesn't exceed 10%. The scientific and technical programs financed by the state with great difficulties find practical application. For comparison: in developed countries over 60% of scientific researches are financed by private companies.

Analyzing activities of the state in the matters of creation of the knowledge-intensive economy, it is necessary to consider two fundamental points. Firstly, interest of the state in innovative process. If considering innovations as a resulting effect of activities of intellectual and creative resources of society, then the state aims at maximization of economic return from these activities. Secondly, for more effective management and use of results of innovative activities of subjects at all levels of economy the state should control this process systemically, i.e. on the basis of process of interaction and embedding feedback with these subjects.

The government for all years of independence of the country constantly keeps development of domestic science. Expenses on science from the government budget for the period increased from 1.9 billion tenge in 2000 to 43.3 billion tenge in 2014. Overall, in 2014 internal expenditures on researches and developments constituted 66.3 billion tenge (Table 2). The share of expenditures for research and development in GDP is an indicator of science intensity of GDP – this year it reached 0.17% [12].

Internal expenditures fall generally on applied researches of 58%, about 23% fall on basic researches and 19% for experimental developments.

Distribution by fields of science: 40% for researches of technical science, natural – 35.5%, in the field of agricultural sciences – 11% and researches and developments costs for medical, public and the humanitarian sciences made 13%.

On research and development falls 81% of all internal costs, the rest are the share of the higher education.

But it is necessary to recognize that, despite all these efforts, we considerably lag behind not only developed, but also some developing countries on this indicator.

Kazakhstan still is in the 4th technological way that speaks about low effectiveness of the Kazakhstan science and its weak links to the real economy.

Table 2. Internal expenditures on R&D, mln. tenge

	2012	2013	2014
Internal expenditures on R&D, mln. tenge	51253.1	61672.7	66347.6
By type of works			
Fundamental researches	12 063.4	18 197.0	15 260.7
Applied researches	28898	33 369.4	38 394.7
Experimental development	10 291.7	10 106.3	12 692.1
By fields of science			
Natural	14993.3	22361.3	23556.7
Technical	24048.1	23937.9	26864.2
Agricultural	5018.4	5628.1	7331.7
Other (medical, public, humanitarian)			
By kinds of activities			
Of them			
Higher education	7009.1	9172.8	9067.1
Researches and developments	42205.3	49797.8	53683.1

The number of scientifical research and project design offices in 2014 constituted 1883 units, at the same time payroll number of employees of these divisions made 24539 people. Breakdown of the organizations which are carrying out researches and developments is shown in Table 3.

Table 3.Breakdown of organizations engaged in research and development

	2010	2011	2012	2013	2014
Number of organizations engaged in research and development	424	412	345	341	392
By ownership					
State property	125	115	100	98	112
Private property	296	294	240	236	270
Property of other states, their legal entities and citizens	3	3	5	7	10
By kinds of activity					
Higher education	91	89	83	84	87
Researches and developments	307	292	238	231	245

The entities of innovative activities belong to the public, business, non-commercial sector and sector of higher education. The organizations of a public

sector after reduction in 2012 recovered the quantity and reached a maximum point, having constituted 26% of total number. At the same time the number of staff constituted about 30% in 2014. Internal costs constituted 21695.6 million tenge, or 33% of the amount of internal expenditures for R&D (Table 4).

Table 4. Characteristics of innovative enterprises by main sectors

	Number of enterprises			Number of staff R&D, pers.			Internal expenditures on R&D, mln.tenge	
	2012	2013	2014	2012	2013	2014	2012	2013
Total	345	341	392	20404	23712	25793	51253.1	61672.7
By sectors								
Government sector	69	78	101	4921	5516	7608	11 9605	18 304.3
Higher professional education sector	121	112	105	9405	11828	10961	14 832.3	18 926
Business sector	105	110	149	4718	5036	5786	20 626.1	18 151
Non-profit sector	50	41	37	1360	1332	1438	3 834.2	6 291.2

In the sector of higher professional education the number of organizations decreases in comparison with 2012, accounting 42% for the number of workers. The downward tendency of internal costs on R&D (Table 4) is observed.

Positive dynamics is observed in a business sector. The number of entities increased by 44 units, the number of staff increased by 22%. However internal costs increased by 18% in comparison with 2012.

The non-profit sector shows reduction of number of the organizations from 50 to 37. The number of employees constitutes about 5% of the total staff. Internal costs in general in three years constitute about 9% of all costs.

The number of researchers steadily grows. However there was a redistribution by sectors: there was a reduction by 4.4 times in the higher professional education sector with a simultaneous increase in the business sector of 9.1 times.

Share of researchers with academic degrees in the total number of the personnel engaged in R&D constitutes 73% that is higher in comparison with 2012 for 7%, due to double increase in number of doctors of philosophy and PhD(Table 5).

Table 5. Number of staff engaged in researches and developments

	2010	2011	2012	2013	2014
Number of staff engaged in researches and developments	17 021	18 003	20 404	23 712	25 793
By forms of ownership of the organizations					
Government property	8 620	8648	10 247	11 379	12 315
Private property	8 354	9313	10 100	12 026	13 145
Property of other states, their legal entities and	47	42	57	307	333

citizens					
including					
Researches, of them	10870	11488	13494	17195	18930
Researches with academic degrees	4447	4867	5544	7426	8186

Results of activities of researchers are estimated by the number of publications (table 6.7) and patents (table 8,9).

Table 6. Scientific publications

CIS countries	Number of publications	Number of articles per 1000 pers.
Russia	29724	0.2
Ukraine	4931	0.11
Belarus	113	0.01
Kazakhstan	893	0.05

Table 7. The rating of countries by the number of publications in the Web of Science base for 2010-2014

№	Country	Number of publications	Number of publications per 1 mln. citizens
1	USA	2 763 847	8915
2	China	1 217 851	909
5	Japan	529 032	4165
94	Kazakhstan	2 523	157

Table 8. Indicator of number of patents and its derivatives

	Absolute number of patents	Rate of a surplus of number of patents for 2000-2006.	The share of countries in the international patent business	Number of patents per 1 mln. pers.
China	526412	1339	26.5	393
USA	503582	310	25.3	1624
Japan	342610	127	17.2	2697
Russia	41414	143	2	289
Belarus	1871	9	0.09	207
Kazakhstan	1732	16	0.08	108

Table 9. The number of valid patents (including innovative and preliminary) for objects of an industrial property as of 31.12.2014

Total number of issued security documents on objects of an industrial property in 2014	5909
Number of valid security documents for invention	5184
Number of valid patents for useful models	503
Number of valid security documents for industrial designs	1014
Number of valid patents for selection achievements	288

In Table 10 the amount of the created new technologies and objects of the equipment, counting per 1 entity is calculated.

Table 10. Level of creation and use of new technologies and technical objects in the industry of Kazakhstan

	2010	2011	2012	2013	2014
Number of the organizations which have created and are using new technologies and equipment objects	338	562	713	664	681
Number of the created and used new technologies, and equipment objects	1037	1365	1608	2374	2469
Number of the created new technologies and objects of the equipment, counting on 1 entity	3.07	2.43	2.26	3.58	3.63

Innovation indicators show a tendency to increase innovative activity, but considering how much attention is paid to this issue, indicators are low and not comparable with the CIS countries and the world.

The analysis of forming national innovative system shows that in the country the certain experience is accumulated. At the same time, we lag behind in innovative development of Russia, Belarus, Ukraine, not to mention EU and the countries of the world.

Formation of NIS in Kazakhstan should be continued on the following vectors:

1. Implementation of the state support instruments of the entities for implementation of innovative developments and subsequent their implementation:

- provision of long-term lease financing for a period of up to 10 years, a rate of no more than 6%, own funds not less than 10%;
- compensation of a part of purchase costs of technologies in case of input of technology in operation (not less than 30% of expenditures of the technology cost and putting it into operation);

- partial reimbursement for services of the designing and engineering organizations to launch the new or upgrade old manufacturing (not less than 30%).

2. Increase in investments' attractiveness into researches and developments for a private sector, requires taking the following measures:

- increase in a deduction of Research and Development expenditures from the taxable income from 7.5% to 30%, having brought this indicator closer to the world indicators (Canada – 75%, Taiwan – 50%, the USA – 16%);
- reimbursement of expenses on Research and Development of the investors and the companies implementing domestic developments via the mechanism of the tax holidays on the corporate tax and the VAT which shall be performed after development is implemented in production and the profit is got. The entrepreneur putting investments into innovative developments can compensate the means only on condition of implementation of developments;
- provision of privileges only to those projects which are connected with carrying out research works, investments into the equipment, innovative infrastructure

3. Creation in the RK of science cities based on the cities having high scientific and technical potential with city-forming scientific-industrial complex.

4. The prospects of development of Kazakhstan in the innovative sphere are connected with holding in Astana an exhibition of the EXPO 2017 "Energy of the future". It is necessary to use the EXPO-2017 experience for carrying out annual regional exibitions of innovative goods, services and projects.

In general, forming of NIS is essentially important stage of creation of new economy which basis is constituted by acquisition and use of new knowledge. This concept combines the basic elements of scientific, creative and innovative activities within the state. Thus, NIS enables a systematic look at the process of forming a new type of economy and, in particular, changes in the human resource management principles.

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1.3. INNOVATIVE DEVELOPMENT OF ECONOMY OF KAZAKHSTAN: PROBLEMS AND PROSPECTS[3]

In the long term the development of competitive advantages of Kazakhstan's economy can only be achieved on the basis of transition to an innovative economy. As the fundamental basis of development, the modern innovative economy forms innovation system, the basis of functioning of which is the genesis of innovation as a non-uniform, non-linear and multi-faceted process. In practice the activation of the innovation process is implemented through the formation of national and regional innovation systems, in which the interrelations between various social and economic institutions are established for the development, deployment and diffusion of innovations. Innovative systems of competitive countries of the world, for all their differences, are united in one thing: the process of genesis and implementation of innovation in these countries has high levels of efficiency and effectiveness.

Today, the intensity of innovative activity is largely reflected on the level of economic development: in the global competition winners are those countries which provide favorable conditions for innovation. That is, the development of innovative economy is one of the most effective ways to improve the country's competitiveness. From the experience of foreign states, we can conclude that the national innovation system will be effective and bring high returns only in the case if in the country there are a developed business sector and a culture of perception of innovation by the society. Innovations embodied in the new scientific knowledge, products, technologies, services, staff qualifications, management techniques are the main factors of competitiveness in all economically developed countries. [1, p.10].

Nowadays, according to the World Bank's rating is now Kazakhstan in terms of innovation is on the 92nd place, along with countries such as Morocco (91st), the

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Philippines (90th), Kenya (89th), Mauritania (95th), and Angola (96th). In obedience to the Global Competitiveness Report of the World Economic Forum for 2014-2015, accordingly to the aggregated factor of innovation and application of innovation to business, Kazakhstan is on 114th place among such countries as Bangladesh (113th), Mongolia (112th), Mali (116th).

At the same time, in recent years, on average the expenditures of Kazakhstan on R & D were 0.25% of GDP, whilst in Finland this figure was 3,49%, in Korea it was 3,64%, in the USA it was 2.6%, in China it was 1,44% of GDP, while on average in OECD countries it was 2.24%.

With that, according to the Programme for International Student Assessment (PISA) Kazakhstan is on the 59 place out of 65 countries.

In general, to date, most of the innovation activity in Kazakhstan is stimulated directly by the state, and most of the research work is carried out in government laboratories. According to the Kazakhstan Statistics Agency, in 2015 the share of the private sector in R & D was for only 36.6%, while in Japan (78.5%), China (73.3%) and the USA (72.6%) most of the research is carried out by the private sector.

In developed countries, the dynamic development of innovation is one of the main elements of innovation economy. Pursuant to UN statistics, the top ten innovative developed states includes Japan, South Korea, Finland, UK, USA, Sweden, the Netherlands, Canada, Australia, Singapore.

Today Kazakhstan on all counts of innovation is behind the world trends and it requires a national innovation system, a system of financial, informational, infrastructural support, which would allow to solve the existing problems in this area.

As a result of studying the different notions of the interpretations of the concept of national innovation system, we accept the following definition. The national innovation system is a set of business entities (research institutions, businesses, consumers) and institutions (legal, financial, social), which interact in the production process, using and dissemination of advanced knowledge and technologies aimed at the implementation of priority directions of development of the country's economic system, as well as enhancing its competitiveness.

Based on the essence of innovation and determination of the NIS(National Innovation System), the aim of its operation can be defined as improving the quality of life by increasing the competitiveness of the macro system by the means of stimulating innovation activity (on condition of the most complete implementation of innovative potential of a microsystem) and demand for its results. Under the quality of life we should understand the level of final consumption of households and the availability of high-quality (comparable with the world level) services in the medical, educational and cultural spheres [2, p.96].

In our opinion, the key functions of the national innovation system are the following:

1) The formalization of the provisions of the industrial and innovation policy: formation of innovative policy covering all the NIS participants defining their roles

and functions within the system; creation of an effective legal framework in the field of innovation, taking into account the interests of all participants of innovation, especially in the field of protection of intellectual property rights, technical standards, the environment; choice of priority directions in the development of innovation and research.

2) Efficient allocation of resources for innovation: availability of resources for R & D funding is usually limited, so they must be used effectively and efficiently

3) Implementation of research activities. This function is the basis for the innovation system, because it provides the work of scientific and innovative organizations, research and development. Some studies, for example basic ones, although do not provide a quick economic returns, nevertheless have a major impact on the innovation process, as many innovations are based on the major scientific discoveries.

4) Human capital formation. Investments in human capital are long-term. In the future the implementation of the innovation policy goals will depend on the quality of training in scientific and technical spheres. In addition, participants of the system alone can not solve this problem.

5) Development of incentives for innovation systems, which may include financial incentives (grants, subsidies, tax breaks, etc.), as well as various forms of intangible incentives (recognition of merit, prestige, etc.).

6) supporting the development of perspective sectors of industry and services in which it is possible to produce unique products for global markets.

On the basis of foreign experience it is clear that in no country in the world innovation system has not been formed by the market, by the private sector alone. In all countries the state plays a leading role in improving competitiveness of the national economy on the basis of a systematic approach to the creation of an innovative economy with a social slant.

It should be noted that in the field of innovation the Kazakh enterprises mainly choose "catching up" strategy, which testifies to their innovative insensitivity. "Catch-up" strategy involves imitation of foreign technology, copying products and mass production of them. So, from all sales in Kazakhstan innovative products on 01.01.2015 for 82,597,400,000 KZT, 88.9% are the products, newly introduced or those which undergone significant technological change while the share of really radically new products is unknown. If we compare with it previous years, the share of production of newly introduced or subjected to significant technological change has changed as follows: 2009 - 14.1%, in 2010, 28.6% -36.7% in 2011, 2012 -56.7%, 2013 - 70.6% 2014 80.4% .- ie the steady growth is obvious. In order to eliminate such negative trends in innovative activity of enterprises in Kazakhstan, we are profoundly convinced that the effective mechanism must be created to ensure the balance of competition and co-operation efforts of economic agents with the direct role of the state the result of which should be the formation of the national innovation system (NIS) [3].

For the first time the concept of the NIS has attracted the attention of scientists from different countries at the end of the twentieth century, when it was necessary to explain the source of Japanese technological breakthrough (K.Frimen, R. Nelson, N. Rosenberg, B.Lundvall etc.). The closest to this was to determine the content of the Economic Cooperation Organization (Oeste) in 1987. As the National Innovation System it is understood a set of institutions belonging to the private and public sectors, which are individually and in concert with each other cause the development and diffusion of new technologies, creating the basis for the formation and implementation of innovation policies of the government.

NIS is composed of the following main elements:

• innovation infrastructure;
• financial infrastructure;
• scientific potential;
• business.

Innovative infrastructure involves the organization of technological parks, innovation centers, technology transfer and others. Financial infrastructure is represented by banking institutions, venture capital funds and so on. As for scientific potential , it includes research institutions, universities, research centers at universities, etc. Business involved in the national innovation system can be both large and small, both public and private [4, p.124].

The state, forming a national innovation system should work in the following areas:

• definition of the scientific and technological priorities:
• development of innovative development mechanisms:
• Conduct the forecast of technological development and creating a favorable economic and legal environment:
• developing the tools of indirect stimulation of innovative development;
• participation in the development of innovation infrastructure;
• elaboration of research and development;
• improving the education system; stimulating science partnership with private capital.

In the Republic of Kazakhstan on the 8th of July, 2004 at a meeting of the Government of the Republic of Kazakhstan the question "On the formation of the national innovation system." was discussed. It was prepared by the Ministry of Industry and Trade. In the State Program on formation and development of the national innovation system of the Republic of Kazakhstan for 2005 - 2015 years, developed following a meeting of the Government of Kazakhstan, it is noted that in the 90-s years of the twentieth century, in Kazakhstan there was a sharp reduction in research in strategic areas of scientific and technological development, decline in the prestige of the scientist and the scientific relevance of the results, the innovation activity of enterprises reduced, the outflow of overseas specialists and intellectual

property took place, leading to a weakening of the scientific and technological potential, high technology manufactures degradation.

The lack of an integrated system approach to management of innovative processes impedes the development of innovative potential of the country, it does not allow to identify the right priorities for its further development. In the Republic of Kazakhstan there is a closed scientific-technological system that is not aimed at the commercialization of knowledge and essentially acts as a deterrent factor in the future development of the country.

This position of Kazakhstan is determined by factors that form the fundamentals of innovation development of the country.

Firstly, there is insufficient level of spreading of a innovation "culture" of in society.

In particular, this is reflected in the approach to education and training, which in a small degree are focused on the formation of innovative thinking. In addition, this is reflected in the level of demand for the results of domestic research and development and it is conditioned by the status of scientists and significance of scientific activity for the society as a whole.

Secondly, the lack of development of entrepreneurship prevents the increase of innovation activity in the country.

The current development of the business sector explains the low level of domestic offers innovative products and services. In Kazakhstan, practically there is no competitive market capable of generating innovation.

Thirdly, weak demand is a key factor limiting the promotion of innovation in the country.

Today in Kazakhstan there are no special state regulatory measures to promote the demand for innovation, including through technical regulations, public procurement system, giving special status of an innovative company.

The most dynamically developing companies of industrial sector are often forced to acquire or develop new technology abroad. This is due to the limited measures to stimulate the interconnection of national science and business.

Along with the above systemic deficiencies Kazakhstan does not have a focused plan and coordination of the development of science and technology.

Factors constraining the active innovative development of the country comprise the lack of business incubators, technology transfer centers and science parks. Due to the low availability of premises, it is hard for innovators to create innovative products. Strengthening intellectual property protection and improving the efficiency of public procurement could be an additional incentives to increase the number of innovative companies. In Kazakhstan innovative companies must deal with the introduction of scientific and technological progress, new "breakthrough" technologies, and major inventions created in those sectors where the country's competitiveness.

In particular, in industry (oil and gas, chemical, and others.), electricity, agriculture, telecommunications, space and military development, biology and medicine, etc .. It should also be taken to ensure that domestic companies were interested in the development of innovative projects instead of the traditional trade and services. Small businesses and small companies are more competitive because of the high mobility and speed innovation. In order to increase the share of small companies involved in the introduction of new products and technologies, it is necessary:

- Generate demand for new technology that is not possible with low competition in virtually all sectors;
- Improve the access of enterprises to financial resources;
- Improve the skills of professionals.

In general, the innovative development in Kazakhstan is less developed and it has low activity. The analysis shows that in 2009-2013the functionality of the technology parks was narrowed to the functions of technology business incubators and business centers due to lack of technological parks of financial security processes, technology commercialization and lack of development of the industrial base. Tough competitive environment in the global market, low level of industry management, as well as the limited time frame of commercialization and unequal amounts and conditions of realization led to the fact that venture capital funds of the country cannot yet invest innovative technologies.

Another factor holding back the modernization of the national economy and the dynamics of the innovation process is the low level of investment in research and development, science and technology. When there is the absence of demand for technological innovation, the success rate of most technology transfer programs will remain slow. In this respect, state policy is very significant (targeted programs through government contracts or state challenges), aimed at encouraging domestic companies to invest in innovation, either through their own laboratories or through orders to scientific organizations.

Besides, we also need to improve further the science management system to the concentration of financial resources, human resources and scientific and technological capacity in the priority areas of science and in the first place is ensuring the needs of the efficient development of the real sector of the economy, especially in those sectors where Kazakhstan has already reached competitive results. Here, it should be noted that the pace of financial investment in research and development must be compatible with the pace of development of human resources that can leverage investments.

It is also necessary to create the conditions for the transfer and commercialization of research results and their introduction into economic circulation.

In this regard, according to the State Program on formation and development of the National Innovation System of the Republic of Kazakhstan for 2005-2015, there

was decided that the national innovation system of Kazakhstan should be formed in the following order:

1. 2005-2007 - the formation of the NIS with the active participation of the state:

2. 2008-2010 - improvement of cooperation mechanisms and functioning of NIS elements;

3. 2011 - 2015 - sustainable development with a decrease of NIS share of public spending and an increase in private investment.

Determination of the strategic development priorities of the national innovation system of the Republic of Kazakhstan is based on the activization of its key components. As the first component, the scientific potential of the Republic of Kazakhstan is studied, which operates in difficult conditions of a new phase of development of science, which is called "technoscience". With the help of the economic and mathematical modeling there was the research dedicated to the influence of various parameters of quality of human capital per capita (the cost of research and development (R & D);.the number of personnel engaged in research and development, capital-labor ration in the sphere of science, the proportion of highly qualified specialists (doctors and candidates of sciences) in the total number of specialists-researchers, the number of patents, the share of basic research in the total volume of scientific and technical works; the share of applied research in the total volume of scientific and technical work) on innovation activity of Kazakhstan's economy.

Conceptual mechanisms of innovative modernization of the economy of the Republic of Kazakhstan were worked out on the basis of harmonization of legal and regulatory frameworks and the mechanism of alternative sources of investment RK innovation. The so called "window of opportunity" was identified for the Kazakh economy, taking into account the level of entry barriers in various phases of the technology life cycle. The necessity of integration of Kazakhstan into the global innovation system was substantiated through the implementation of interstate target program of innovative cooperation of the CIS member states for the period up to 2020. Interstate innovation space will assist in the provision of each state, in other words, CIS member states have equal opportunities in sharing their scientific and technological and innovation capacities, access to the markets of scientific, technological and innovative products, as well as in the formation of a common market of high-tech goods and services of the CIS countries.

Development of the National Innovation System of the Republic of Kazakhstan is aimed at achieving sustainable development through economic diversification and retreat from its raw material orientation, wherein the innovations are identified as the main factor characterizing the competitiveness of the national economy. Full use of innovations for the further dynamic development of economy and society is possible in the case when the state has focused innovation policy.

Formation of the National Innovation System (NIS) is based on four main subsystems, where the state, through direct or indirect participation can effectively implement innovation policy: the scientific and technological potential, innovative activity of the enterprise, innovation and financial infrastructure [5, p.163].

Scientific and technical potential is a collection of various types of resources involved in the implementation of innovation and it is the basis of innovation. This includes public research organizations, research organizations at the national companies, private research institutes, scientific staff, material and technical base.

The innovative activity of business is the foundation of innovation development of economy. Innovative entrepreneurship is a multidimensional economic activity. In the role of an entrepreneur there can be physical and legal entities engaged in various kinds of proactive activities related to the reproductive cycle of innovation product: the creation of an innovative product; the broker function (provision of services related to innovative product promotion and his transfer from the direct creator to the consumer); performance of the functions in the financial sector for innovation. The sphere of innovative entrepreneurship can include private investors, business angels, innovative enterprises, funding promising naunye application development, as well as venture capital funds.

Innovative infrastructure is a set of interrelated, mutually reinforcing production and technical systems, organizations, firms and relevant organizational and control systems required for the effective implementation of innovation and the implementation of innovations. Innovative infrastructure determines the pace of development of the economy and the growth of the welfare of its population. The main objective is promoting innovative infrastructure solution of the problems of resources required for the implementation of the innovation process. Innovative infrastructure is a system, so the efficiency of its operation is determined not only by the infrastructure of institutions (industrial parks, centers of commercialization of innovations, venture capital funds, etc.) but also by systematic links between them. The absence of such relations determines the low efficiency of investment in the formation of innovative infrastructure in the economy of Kazakhstan.

Financial infrastructure includes the financing of innovative projects, research and production and educational processes in the field of innovation and technological development. Financial infrastructure provides the necessary conditions for the participation of enterprises in the development and launching of innovative high-risk projects.

In addition, the financial infrastructure provides complex financing perspective of applied research and experimental development and also it stimulates the development of entrepreneurship in innovation and infrastructure. Since innovation involves a number of stages and there are a variety of enterprises and organizations working in that sphere (research, design, enterprises of different industries, development company), it is important to ensure consistent funding for all its stages (research and development, prototype development, creation of the prototype, serial

production a new type of product) and for all participants. The development and adequate funding for innovative programs, project financing (loans), the establishment of special institutions (organizations), funding innovation, innovation funds, innovative banks, venture capital funds contribute to the solution of this problem.

The critical condition for the functioning of the NIS - full availability of all the elements and the relationship developed between the two systems as a whole.

Analysis of Innovation Development of indicators has identified positive trends in the development of NIS (increase in expenditure on research and development in absolute terms, growth in the number of organizations engaged in research and development). However, it is noticeable and low levels of research funding in relation to GDP, as well as weak innovation activity of enterprises [6, p.78].

Within the framework of the state program for accelerated industrial-innovative development of Kazakhstan the main tools of innovation policy should be aimed at the consolidation of efforts of business and government on the development of priority sectors of the economy, as well as the formation of effective institutions and mechanisms of their interaction.

The presence of modern industrial and social infrastructure is an essential factor of accelerated economic development and quality. Most of the territory of Kazakhstan and its geographical transit character dictate the need for a dynamic development of energy, transport and telecommunications systems. With regard to the model of industrial and innovation strategy of the country, the criterion the optimality is a functioning model that is recognized as the most effective of the possible options for the development of the national economy.

In this respect it should be noted that the promotion of industrial and innovative activity occurs through the use of state regulation and economic incentives mechanism. Innovation policy includes a system of measures for the selective support of strategically important sectors of the national economy [7, p.52]. They are designed to influence economic growth, structural transformation of the economy, including the innovative sphere.

Support of competitive sectors of the economy should be carried out in parallel with the development of a package of innovative factors. The most important instruments of this policy include improvement of tax legislation aimed at replenishment of budget revenue by expanding the tax base and a shift in emphasis on the taxation of natural resource rents; improvement loan tracking technology to prevent their use for speculative operations; differentiation of the required bank reserves, depending on the bank's asset structure with the establishment of higher interest rates on short-term loans for financing intermediary operations and reduced interest rates for long-term investment loans.

Today in our country there are development institutions concerned with the production of high-tech products but they are not enough for the realization of ideas on a wide scale. In order to achieve the effectiveness of the funding, it is necessary to

develop projects for experimental development and for initiative and risky research applied nature; it is necessary to provide quality investment industrial and innovative sector; intensive development of information and communication technologies should take place; also we should promote the most promising high-tech technology through regional parks in the domestic and foreign markets. In combination these measures will achieve synergies in the development of our country's economy.

In general for elimination of adverse factors and the solution of the main problems of innovative development it is offered:

- to create effective national scientific and innovative system on a basis of the legislation system which will order all relations between subjects of scientific and innovative activities and stimulating demand for innovations;
- to develop the effective mechanism of functioning of a technological corridor on transformation of scientific knowledge into a finished commercial product: the idea – the innovative offer – Research and Development – a prototype – production – the market;
- to provide businesses, allocating their own funds for scientific and scientific-technical activities, with favorable conditions for taxes;
- o develop a strategic plan for research projects, to ensure communication between basic, applied research and commercialization process of their results;
- improve the quality of training of scientific and innovative training and create favorable conditions for their work and development;
- to create a specialized high-tech zones;
- the systematic collection and processing of information that can be used to improve the decision-making process of scientific and innovative activities.

Thus, we see that due to the lack of effective and advanced tools in the field of law, technology, and scientific personnel, it is difficult to describe the general economic and social development as innovation-directed, despite the possibilities and innovative achievements which Kazakhstan has now. Assessment of the status and prospects of Kazakhstan's economy suggests that consistent, complete system of innovative development of Kazakhstan society is not applied enough, the basis of which must be an innovation economy. With all of this there should be a source of scientific and technical factor and as result, new enterprises should appear producing new products and services that will ensure the welfare and sustainable economic and social development. Today Kazakhstan needs to look for new areas of economic development. In order to improve the country's competitiveness in the global market we need to develop actively high-tech industries and we need to create an effective national innovation system. Without this, there will be no innovation progress.

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1.4.FORMATION OF THE THEORY OF INNOVATION AND ITS MODERN CONCEPTS[4]

For a long time the theoretical basis of industrial and technological development served as the neoclassical theory of general equilibrium. The provisions of this theory formed the basis of the strategy and policy of economic reforms in the Republic of Kazakhstan.

The great contribution to the development of evolutionary economics made by such scholars like Schumpeter, N. Kondratyev, F. Hayek and others. This theory is based on the study of the progressive development of industrial production on the basis of the evolution of the technological base of industrial production in a competitive environment. The subsequent development of the theory of evolution was developed by K. Freeman, R. Nelson and others.

According to their view, the economic actors involved in innovation activities are considered as components of a single system, which is called innovation. These systems operate at the national level and at the level of industries, companies and regions [1].

In technologically advanced countries, there are cardinal changes. According to Schumpeter, the reason for these changes is the emergence of an innovator-entrepreneur. With the growth of innovative activity created new products and new technologies, improved technical conditions of production. Business is divided into two main groups:

- innovators who are developing new technologies and products;

[4] Authors: Narenova A.N., Ryskulova Zh.O.

- conservatives who are using traditional technologies that produce known products.

Implementation of innovations is growing financing needs, which are satisfied provision of loans to entrepreneurs-innovators. The interest rate at which the attraction of investments for innovative projects, is the price paid for the new means of production, the entrepreneur-innovator. As a result of its entry into the market leads to disruption of the price ratios of costs and revenues.

Innovations form the basis of effective competition. New products create temporary monopoly of new products or effective monopoly which is an internal component of economic development. It gives new possibilities of overcoming crises and downturns in industrial production. According to Schumpeter, innovation has the following types:

1. Creating a new, unknown product for consumers or creating a new quality of a known product;

2. Introduction of a new, not known to the industry technology or mode of production, which is based on not only new scientific discovery, but also a new way of commercial use of a commodity;

3. Development of a new market for products;

4. The discovery of a new source of raw materials or semi-finished products.

Media innovations include:

-specification and technical documentation;

-design documentation;

-scientific publications;

-patents;

-license;

-invention;

-samples of new products;

-samples of innovation - technical processes, new types of equipment;

-new types of informational devices and others.

In the 90s of the XX-th century, there were new trends in industrial development: the dependence of the production of goods, scientific and technical services from the application of scientific knowledge and technology; growing number of producers of new knowledge; impact on the innovation activity of scientific institutions and the business sector; close interaction of firms.

Institutional economic theory is based on a study of the problems associated with the development of institutions, the interaction of market and non-market institutions. Institution means a set of norms and rules regulating the activities of economic entities as well as the mechanism of controlling their observance. Also institution defines as a set of formal and informal processes of regulatory of rules and mechanisms to ensure compliance.

We know that external institutions are the rules under which the interaction with other organizations.

In the implementation of innovations highest results are obtained multinational or transnational corporations. Therefore, innovations are also technology received on transfer from other countries.

State regulation of innovative processes is one of the main conditions for a functioning market economy. The strategy of innovative development should be carried out in the following areas:

-restructuring of scientific and technological potential in different sectors of the economy;

-create Property Fund of Science and Innovation;

-development system use of leasing for the subjects of innovation, producing high technology products with the use of expensive instruments and equipment;

-improving mechanisms to attract a bank loan for the expansion of the system of innovation;

-development of the system of mandatory deductions part of the profits from the export of oil, gas and mineral resources for the creation of fund innovations in fuel and energy complex;

-create in the financial-industrial groups specialized innovation centers, coordinating innovative projects;

-formation Institute of innovative projects from among scientific and technical personnel and specialists.

The forms of state support for research and innovation activities are:

-Direct financing;

-Providing individual inventors and small implementation enterprise-interest bank loans;

-Create venture innovation funds using tax incentives;

-Reduce the state of patent fees for individual inventors;

-Create a network of techno parks and techno polis.

Research in the field of economics growth theory allowed to establish the dependence of the economic dynamics of the technological innovations that cause changes in the growth rate of investment and production. The main stimulus influencing the growth of investment activity of companies, is the ability to create technological innovations that increases production efficiency.

Enterprise Innovation activity manifests itself primarily in the development and implementation of innovative strategies and innovation policy. Innovation Strategy is a long-term development activity on a basis of innovation. Innovative strategies can be aggressive and defensive. Aggression means the degree of change, provided by innovation, speed of implementation and frequency of turnover. Defensive strategy means for the introduction of necessary innovations in the order of the leader. The greatest increase in the competitiveness of products and the company provides an aggressive strategy.

Also we distinguish innovative, simulation and venture strategies. The innovative strategy is aimed at ensuring high competitiveness of products through the

independent development and innovation high degree of radicalism, covering all stages of the innovation process and innovation life cycle phases [2].

Simulation strategy is focused on the use of already known product, technological and other innovations with a slight improvement. It involves the development, covering all stages of the innovation process and innovation phases of the life cycle, with the exception of R & D stages of design and technological preparation (starts with project design and construction). With this type of strategy significantly reduces the technological, commercial, and financial risks of innovation, which makes its widespread use in the world.

Venture strategy involves the use of innovative enterprise development ventures. Venture enterprise engaged in the development of innovation in the rapidly growing industries, covering the stage of development (R & D, preparation of design, technological and design documentation) and implementation phase (classic venture).

Innovative enterprise strategy innovation policy is implemented. Innovative enterprise policy is the definition of the objectives of innovation strategy and the creation of a mechanism to support priority programs and projects of the company.

The goal of innovation policy is to create conditions for the effective operation of enterprise on the basis of its competitiveness, and the competitiveness of products [3]. Improving the competitiveness of products due to the innovation policy measures can be characterized by the following indicators:

1. Level of technological development (the ratio of the capacity of products produced by certain types of technology);

2. The level of export orientation (ratio of capacity of production, sales in certain segments of the market (in the world, interior) to the total volume of sales);

3. The level of certification (the ratio of the capacity of production, made-term technology, certified to ISO standards, the total volume of output);

4. The level of the update (the ratio of the capacity of new products developed in the production, to the total volume of output).

In addition to the innovative policy, there is a state innovation policy, which is part of the state social and economic policy. It defines the objectives of innovative strategies, mechanisms to support priority programs and innovative projects and is the foundation for the innovation policy of the enterprise.

The formation and implementation of innovation policies based on the creation of a system, which will allow in the shortest possible time and with high efficiency used in the production of intellectual and scientific-technical potential of the country. Through the use of new information technologies such potential can benefit both small and large organizations all forms of property. Innovation policy is a powerful lever with which you can adjust the cyclical downturns in the economy and ensure its restructuring and to fill a variety of market competitive products.

The literature discusses various approaches to technological change and to their use. They have a fundamental relationship with the economic and scientific-technical

progress. According to evolutionary theory of economic and scientific and technical progress it is possible only under certain conditions.

The innovation involved in research and development, as well as other forms of knowledge application in the form of patents, licenses, technical services, the use of machinery and equipment under the new standard or technology to create new products.

New technological invention provides a company-innovator advantage in the market. The process of innovation enables improved operational efficiency and reduced production costs. In this regard, the firm gains a competitive cost advantage. Depending on the demand of the company used a combination of lower and higher prices for building market share and their profits. Product innovations provide the company a monopoly position, enforceable patent or legal monopoly. This position allows you to set the price on the market, exceeding its average level.

The current stage is characterized by NTP technological revolution associated with the transition from a predominantly machining objects of labor to the integrated use of complex forms of physical, chemical and biological processes.

The technology doesn't only determine the order of operations, but also the selection of the objects of labor, means of influence on them, equipment manufacturing equipment [4]. Development of new technologies associated with the effective use of new tools and objects of labor:

-Its transition from intermittent multi-operational processes to processes with a small number of operations;

-Mechanical processing objects of labor is replaced by continuous processes;

-Its transition to closed-circuits with fully processed products (non-waste technology);

-All often used extreme environments, ultra-low and ultra-high temperature and pressure, high vacuum, nuclear radiation;

-For the latest technology is characterized by a great versatility;

-New technologies are interdisciplinary in nature.

Industrial enterprises with a high level of scientific and technical potential, there are about 200 high operating base technologies, which are based on scientific findings and provide a reduction in resource costs, improving product quality, production automation, environmental cleanliness. Individual machines are replaced with technological systems that perform the entire production cycle. The new technology is advanced longer than the equipment and products, that is aging more slowly.

Innovation is defined as the final outcome of innovation, were embodied in the form of new or improved products, introduction on the market, or a new or improved technological process used in practice. Innovation is the result of creative activity aimed at the development, production and distribution of new products, technologies, introduction of new organizational forms, etc. Modern scholars believe that innovation is the use of one or another sphere of intellectual society of the results

(scientific and technical) activities aimed at improving the process of activity or its results (see picture 1).

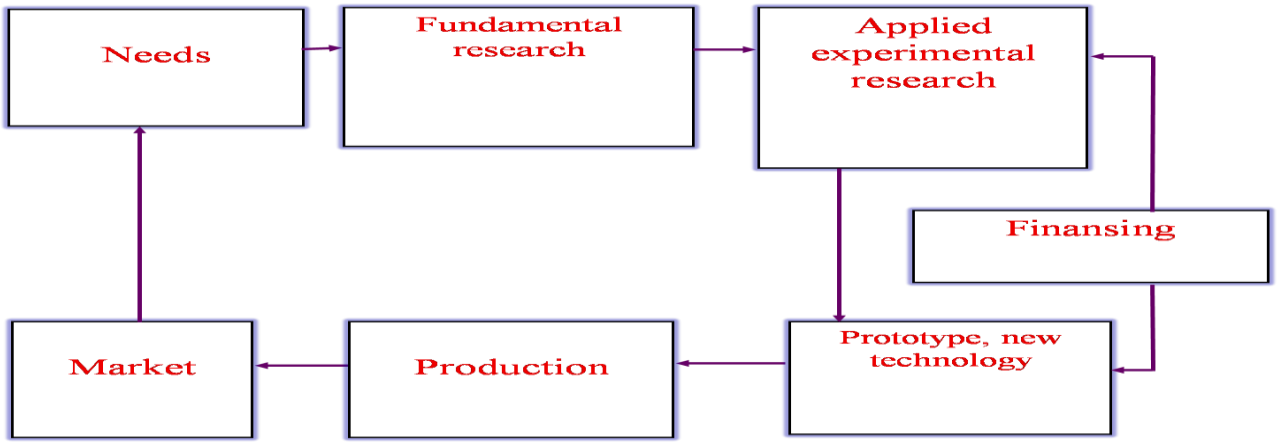

Figure 1- Life cycle stages of innovation

In general, innovation is a renewal of fixed capital (productive assets) or products based on the introduction of the achievements of science, engineering, technology, i.e. natural, objective process of improvement of social production [5].

There are the following types of innovation:

1. According to the degree of novelty:

-basic innovations that implement major inventions and become the basis for the formation of new generations and trends of technological development; improve innovation, usually implement small and medium of the invention and the prevailing phases distribution and stable development of scientific and technological cycle;

-pseudo-innovations aimed at partial improvement legacy of generations of engineering and technology;

2. According to the application:

-productive innovation, focused on the production and use of new products;

-technological innovations aimed at the creation and application of new technology; social-oriented construction and operation of new structures;

- Complex, representing the unity of the several kinds of changes;
- Market, allowing to realise products to the needs of new markets services;

3. Source:

- Innovation which caused by the development of science and technology;
- Innovation which caused by production needs;
- Innovation which caused by market needs;

4. The role in the reproduction process:

- Consumer innovation;
- investment Innovation;

5. On the scale:

- complex Innovation (synthetic);

- simple Innovation.

The need for the formation of innovation is due to the following factors:

- Strengthening the development of intensive production factors, which contribute to the application of scientific and technological progress in all areas of economic activity;

- defining role of science in improving the effectiveness of the development and introduction of new technology;

- necessity of a significant reduction of terms of the creation, the development of new technology by improving the technical level of production;

- necessity of mass creativity of inventors and innovators;

-specificity of process of scientific and technical production: the incertitude of expenses and benefits, pronounced multivariate studies, the risk and the possibility of negative results;

- raise of expenses and deterioration of economic performance of enterprises in the development process of a new product;

- quick obsolescence of equipment and technology;

- objective need of the accelerated introduction of new technology, etc.

In the economic literature there are three main types of innovative business:

1. Product Innovation is an updating process of suppling capacity of the enterprise, that provides survival of the company, increases profits, increases market share, customer retention, consolidation of independent position, increase the prestige, creation of new working places, etc.

2. Technology Innovation is the process of renewal of production capacities that aimed at increasing productivity and saving energy, raw materials and other resources, which makes it possible to increase the profit of the company, to improve safety, to hold the event to protect the environment, it`s effectively to use in-house information systems.

3. Social innovation is the general process of systematic improvement of Humanities of the enterprise. The use of this type of innovation expands opportunities in the labor market, mobilizes company staff to achieve their goals, it strengthens the credibility of the social obligations of the company to its employees and society as a whole. The basis of all kinds of innovative entrepreneurship is the creation and development of new products (goods and services), manufacturing, making things, values, goods, that are understood in the broadest sense of the word. The main and the defining part of this business is the development and production of scientific and technical products, goods, works, information, spiritual (intellectual) properties, that are subject to the subsequent sale to customers, consumers.

Thus, the innovative idea can be described as a real opportunity of the original good production, product, service, or they improved variants or modifications and new brands. [6]

Many people confuse the concept of "novelty" and "innovation". However, novelty is the result of a modern fundamental, applied research, development and

experimental work in any field of activity to improve its effectiveness. Novelty can take the form of discoveries, inventions, patent, trademark, rationalization proposals, documentation of new or improved products, technologies, instruments (standards, guidelines, procedures, instructions), and as result of market research.

Implementation of investment in novelty is a half part of case, but the main thing here is the introduction of novelty, transformation of novelty in the form of innovation. For the development of novelty it is necessary to conduct market research, organizational and technological production preparation, production and issuance of the results. Innovation is the final result of the introduction of innovations in order to change the control object and obtaining the economic, social, environmental, scientific, technical, or other type of efficiency. At the same time novelty can be developed for their own use and for sale. Novelty may be bought-in or self-developed, designed for storage, sale or introduction of manufactured products, becoming a form of innovation. At present, the companies aim to increase the proportion of the novelties that are implemented in the innovation which allows them to raise the level of monopoly in this sphere and dictate their policies to customers and competitors. It must be remembered that the welfare of the society is not determined by weight factors of production and the volume of investment and performance of innovation, giving the final positive result.

Novelties can be developed on any issue at any stage of the product life cycle. Innovative activity is a process of strategic marketing, organizational and technological preparation of production, production and design innovations, their introduction and spread to other areas. There are the following structural sources of economic development of the country:

1. The development that is based on the factors of production;
2. The development based on investment;
3. The development based on innovation.

Each country uses all sources of development at the same time. Competitiveness and efficiency of the economy is determined by the structure of sources. If the functioning and development of the national economy is mainly used currency from the export of natural resources, the level of economic development of a country is low. Destination-based investment development is characterized by the capital investment not in increasing the competitiveness of individual sectors of the country, in their simple reproduction [7]. Priority should be given to the development of the country is not on the basis of factors of production and investment, and development based on innovation activity in key sectors of the economy.

Scientists that study the problem of socio-economic development of the countries came to the conclusion:

-development happens in waves;

-level of socio-economic development is determined by the influence of various technological, social, political and cultural factors;

-driving force is the level of technological and informational development.

Scientists note that the scientific and technological revolution develops in waves with the cycle length of about 50 years. There are five technological modes (waves):

The first wave (1785-1835) is formed a technological way, based on new technologies in the textile industry, the use of water power.

The second wave (1830-1890) is related to the development of rail transport and mechanical production in all sectors based on the steam engine.

Third wave (1880-1940) is based on the use of energy in industry, the development of heavy engineering, electrical industry, new discoveries in the field of chemistry. As a result, radio, telegraph, automobiles, airplanes, etc. have been implemented. There were large firms and trusts. Concentration of the banking and financial capital has started.

The fourth wave (1930-1990) is formed a way of life, based on the further development of the energy sector with oil and oil products, gas and communications. This is the time of mass production of cars, tractors, aircraft, various types of weapons and consumer goods. There were multinational and transnational companies that make direct investments in various markets.

The fifth wave (1985 - to up-date) is based on advances in microelectronics, information technology, biotechnology, new energy, materials, space exploration, satellite communications, etc. There is a shift from isolated firms to a single enterprise network, connected through the Internet.

From the point of view of level of development of countries in the international community is divided into the following groups of countries:

1. Core technology (the USA, Japan, Germany, Britain, France);
2. Countries of the first technological circle (Italy, Canada, Sweden, the Netherlands, Australia, South Korea);
3. Counties of the second circle process (most developing countries have progressed);
4. Post-socialist counties of Eastern Europe;
5. Counties of CIS and foreign countries;
6. Least-developed from developing countries.

Organization of innovative activity in the leading countries is as follows:

- horizontal integrating of scientific researches;
- their design and training;
- the creation of networks;
- joint research;
- State support of new technologies.

It should be noted that the specific characteristics of modern technologies are:

-narrow specialization;
- quick desuetude ;
- necessity of constant development;
-high risky of financial resources;
- quick being spread all over the world;

-development and implementation “to know how.

For the organization of innovation management process is necessary to formulate the goal of management, assess their capabilities, strengths and weaknesses, management techniques, develop an organizational structure and production [7, p. 274]. Chief among them is the construction of an innovative management system structure (see picture 2).

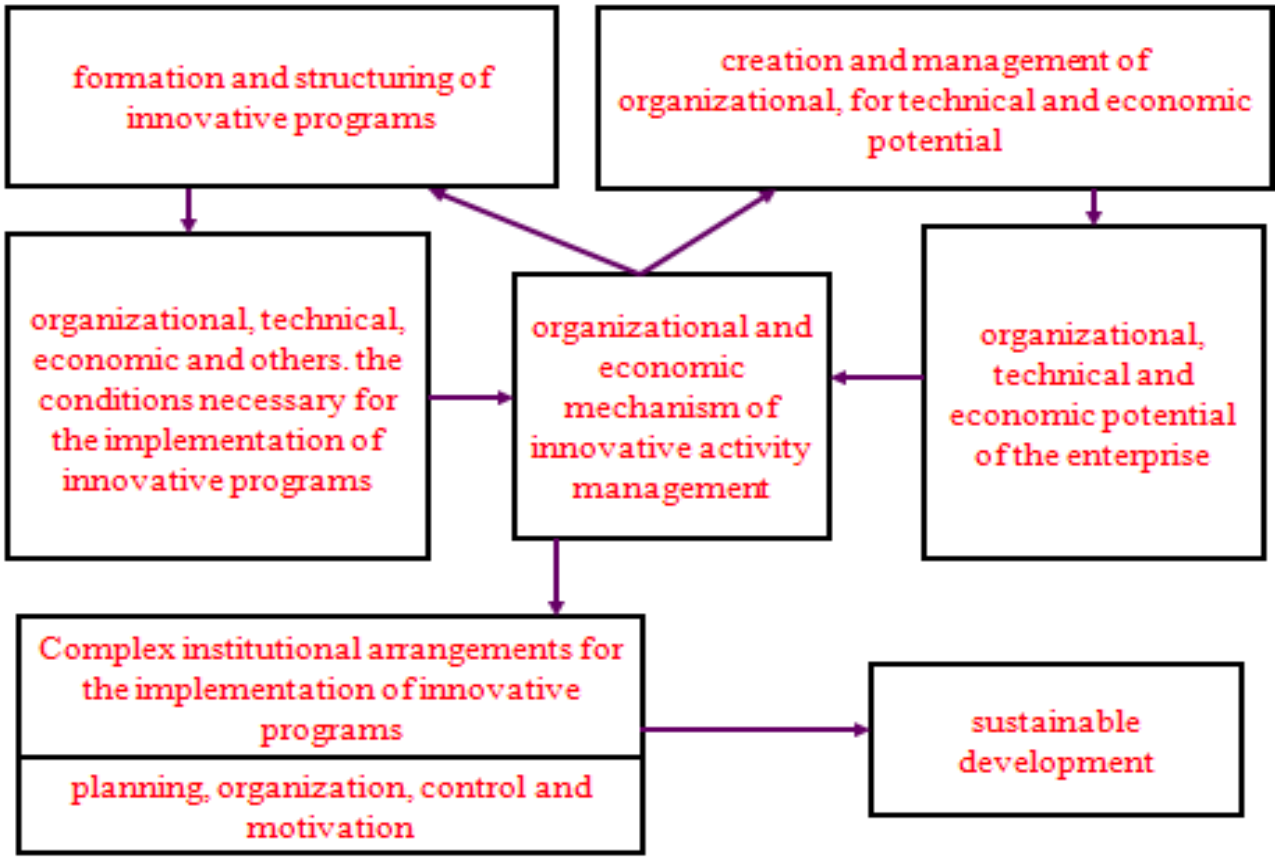

Figure 2- The mechanism of management of innovative activity

Analysis of the system begins with its "exit" produced by products. Thus the main requirement for "exit" - ensuring the competitiveness of goods on the external or the internal market and to achieve thereby the profitability of the company operation. The main condition for the potential competitiveness of the "output" of the system is a high quality strategic marketing research. Consider the classification of innovation applied in the scientific literature (see picture 3).

In the later stages of the product life cycle costs are rising rapidly. For example, the costs research and development work in dozens of times higher than the costs of strategic marketing. And the costs of organizational and technological preparation of production in 2-5 times higher than the costs of R & D. The greater issue of program objects, the smaller the proportion of pre-production costs in the total cost. Costs for the use (operation) of durable goods (more than 1 year) is several times greater than the price of the object. For example, the cost of 10 years of vehicles operation is 10-20 times more than their price. In a competitive environment the priority strategy of

behavior of enterprises should be the strategy of improving the quality of products and conserve resources in their consumers.

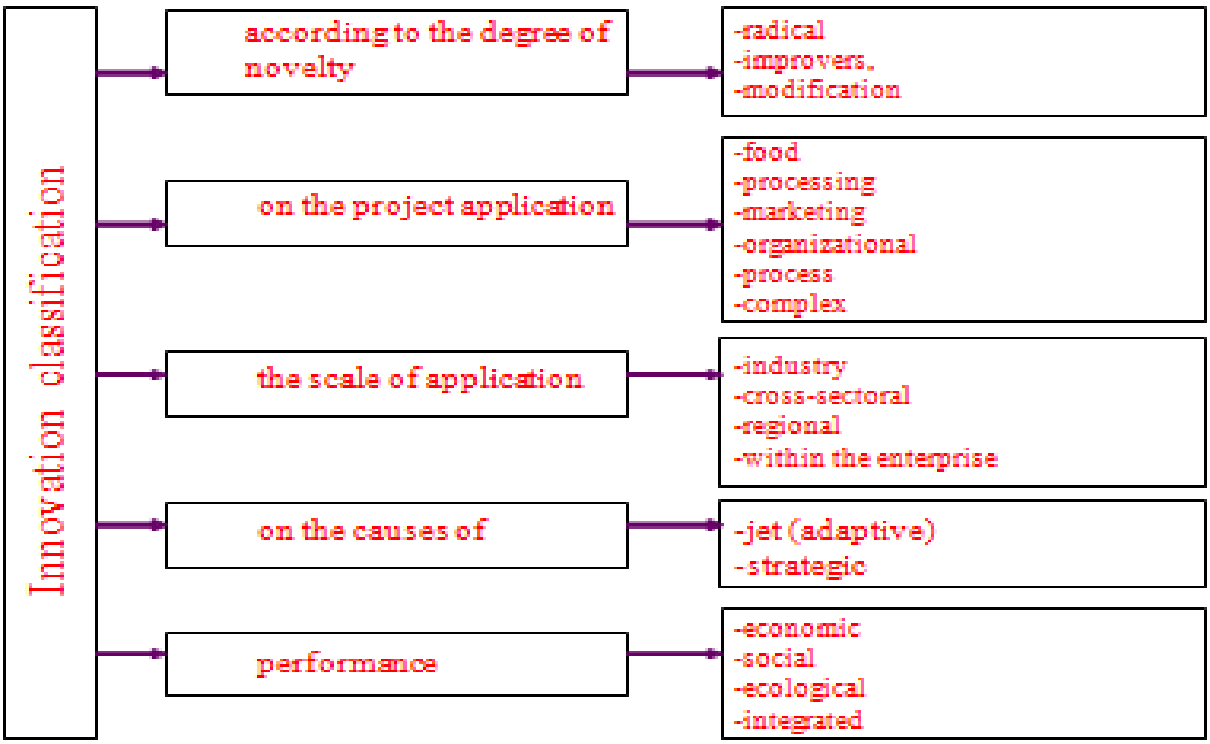

Figure 3- Classification of innovation

By "entry" system refers all that gets the company to production of goods: raw materials, components, energy, information, new equipment, pictures and documents. Government`s aim is to ensure competitive "input" on the basis of market research and selection of the most competitiveness governmental providers. If the "input" is not competitive, the system can not ensure the competitiveness of the "exit".

The components of "feedback" management system applies requirements, customer complaints, new information of consumers. At the same time, consumers can have a feedback, both by supplying the basic goods and suppliers of the company.

Components of the external environment of the company include the macro environment, infrastructure and the microenvironment that have a direct or indirect impact on the competitiveness, efficiency and sustainability of the enterprise.

Innovation policy is formed and corrected under the influence of various factors of external and internal environment of the enterprise (see picture 4).

The environment is a set of economic entities and the driving forces that influence by macro factors that are divided into direct and indirect factors of influence.

Factors include the direct influence laws, regulatory agencies, resource suppliers, customers, competitors, trade, transport intermediaries. The factors include

the indirect effects of the state of the national economy of the country, NTP, political, demographic, social factors.

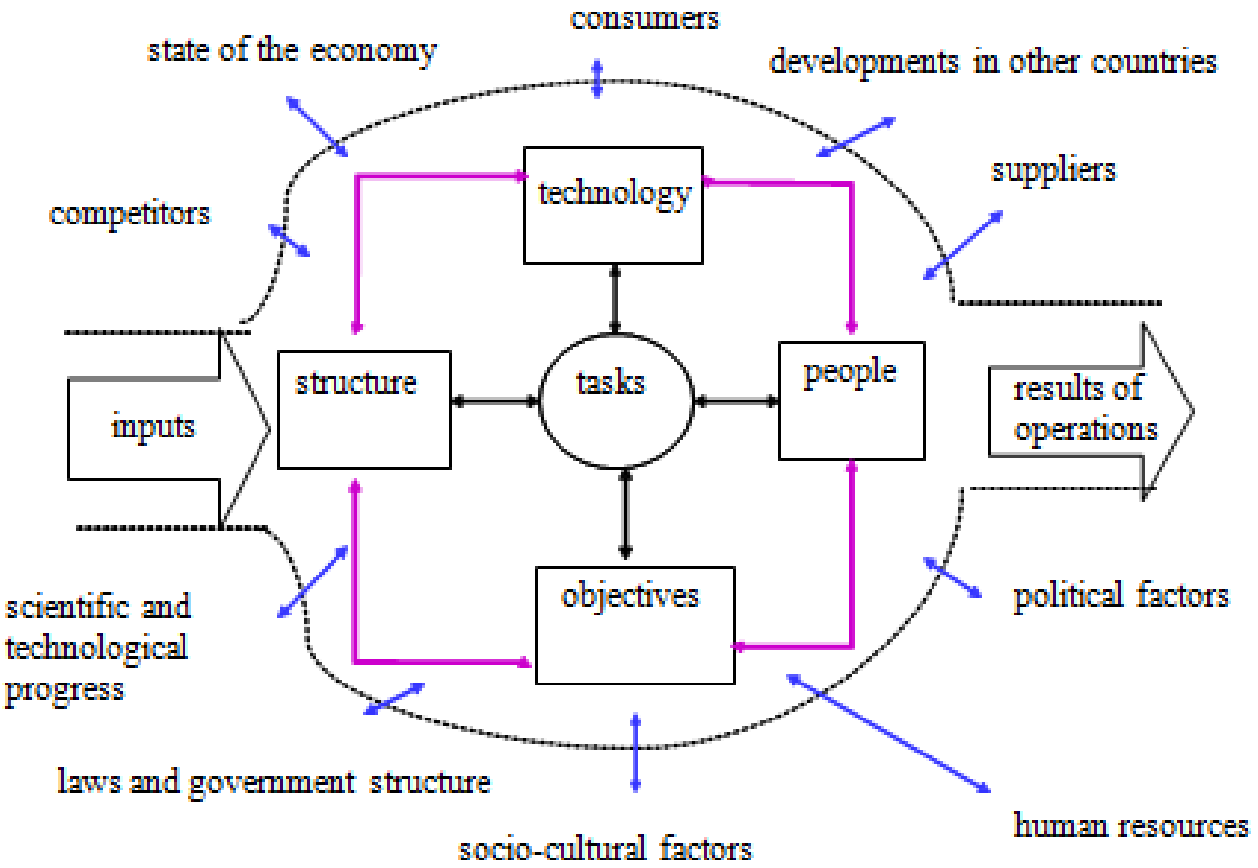

Figure 4- Internal and external environment of the enterprise

The internal environment is a set of actors and the driving force of the enterprise, allowing to establish successful relationship with resource providers and consumers [8]. The factors of the internal environment influencing the conduct of innovation policy are:

-material, energy and capital intensity of production;

-technical level high-tech industry, the state of scientific and technical potential;

- the degree of the depreciation of fixed assets and so on

The main factors contributing to the implementation of the innovation policy of the enterprise are:

-the presence of reserves of financial and material resources in the enterprise;

-high level of scientific and technological potential of the enterprise;

-the presence of the quality management system based on ISO international standards;

-the presence of the system of material and moral stimulation of innovation;

-the presence of an optimal legislative framework and government supporting of innovation policy.

As it is known, in a market economy, an important condition for success and the condition of its development are the enterprise and the entrepreneurial style of activity [9]. Entrepreneurship is the search for new areas of rationalization and profitable investment of resources, implementation of new combinations in the production, movement into new markets, create new products. Entrepreneurship is aimed at making profit above the average level. An integral part of the business is the foresight reasonable risk and strategic management. That is why this business becomes an active factor in the development of production.

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1.5. PROSPECTIVE DIRECTIONS OF INNOVATIVE DEVELOPMENT OF KAZAKHSTAN'S PUBLIC HEALTH SERVICE[5]

Each human's health, as a component of the health of the whole population, becomes a factor which determines not only the usefulness of its existence, but also its potential opportunities. The socio-economic, cultural and industrial development of the country depends on the level of the state of people's health. From the standpoint of sustainable and stable growth of the welfare of the population, the health sector which is a developed, socially-oriented system designed to ensure the availability, timeliness, quality and continuity of care, is one of the main priorities of our state, referring to the strategic objectives.

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Improving the quality management of medical services takes an important place in the context of the Strategic Development of Health Service in Kazakhstan until 2020 [1].

Systematically carried out work in the health sector of the Republic of Kazakhstan has improved the accessibility of the population to the guaranteed volume of free medical care, increased the efficiency and quality of clinical examination of patients.

Public health is the basis of medical services in different countries. Global average public spending on health amounts to 58-61% of all health care costs. At the same time medical services can be financed both from the state budget and national insurance schemes and private funds (cash expenses or private insurance plans). The high level of public health funding from private sources is an indicator of the development of private medicine market. Due to the fact that the provision of medical services in the private sector is carried out on market terms, it is true that the private health sector is the market for medical services.

For the efficiency of the health system, the World Health Organization (WHO) recommends to allocate a minimum required amount of 6-8% of GDP in the budgetary financing in developed countries and not less than 5% of GDP in developing countries. The share of total health expenditure to GDP in Kazakhstan - 3.6%, OECD - 9.4%. In general, government health expenditure per capita in Kazakhstan is 9 times lower than in OECD countries (Kazakhstan - 268 US dollars; the OECD - 2414.).

Due to the lack of funding for health care in Kazakhstan, there is a high level of private spending on medical care (Kazakhstan - 35.4%, the OECD - 19.6%, the EU - 16.3%). According to WHO level of public spending over 20% indicates a low level of financial sustainability of the health system and describes the increased risk for the population.

Financing SBP is funded from the state budget without the joint responsibility of the state, the employer and the citizen. As a result of lack of funding there is a low level of funding for primary health care sector. In Kazakhstan - US $ 95 per 1 inhabitant, Estonia - 231, Slovenia - 369, OECD - 558.

Health care is one of those industries where state activity objectively presents to a greater extent than in the economy as a whole. Moreover, this provision is true no matter to which economic model tends public health service of any given country. In modern economic literature not enough attention is paid to the state regulation of the social sphere, and particularly the health care system, problems and contradictions in this area.

In the Message to Kazakhstan nation "Strategy" Kazakhstan-2050 "- a new policy of established state" The President drew attention to the issues of active implementation and dissemination of new innovative methods and technologies in all spheres of national life. Domestic medicine is not an exception, as the "health of the nation is the basis of our successful future," and high-quality health services and

high-tech medical equipment are the key to preserving and maintaining a healthy mind in a healthy body [2].

The President in his message among the key priorities particularly focused on these new and innovative approaches to the use of IT, such as: "Smart Medicine", remote prevention, "e-health". Their development is aimed, primarily, at addressing many important issues, such as, for example, increasing the availability of high-quality medicine to the whole population; the struggle against bureaucracy, which becomes a barrier, both for patients who need immediate medical attention, as well as for health workers, making it difficult to perform their direct duties; exchange of medical information based on integrated health systems.

The effectiveness of research and availability of effective mechanisms for transfer of development of domestic scientists directly determine the level of innovative activity of the national economy. In the Republic of Kazakhstan indicator of innovation activity is 5.7%, while in Germany - 80%, in the United States, Sweden, France - 50%, in Russia - 9.1%.

Kazakhstan health organizations do not have the practice of calculating the indicator of innovation activity. However, its indirect expression can serve as a proportion of hospital organizations implementing new medical technologies in the provision of tertiary care.

Despite some growth in the share of innovation-active organizations in recent years (from 2.3% in 2009 to 8.7% in 2012), the volume of innovations implemented in the industry and the number of organizations - active participants in the innovation development of the industry continues to be low. The reasons for such low rates are poorly developed research and innovation infrastructure, lack of capacity of researchers, poor material and technical equipment of research institutions, insufficient funding of science and innovation, including the low level of business organizations participation in the development of national science.

Analysis of international experience indicates that not only the government is responsible for the development of the national innovation system. In technologically developed countries, the costs of the private sector (business) for research and innovation is roughly 60-80% of the total expenditure on science (80% in Israel, 78% in Japan, 72.6% in the United States, 68.2% in Germany), i.e. far exceed public spending. So, for example in the US the total expenditure on medical science is about $ 100 billion annually, while public spending on medical science through the US National Institutes of Health is 32 billion dollars each year, the rest of the costs fall on the business structure (the pharmaceutical companies) [3].

Expenditure on research and development according to the fields of science in the Republic of Kazakhstan is presented in the following table.

So, it can be seen from this table that the share of domestic expenditure on research and development in the field of medicine is 3.9% in 2015, whereas in 2014 it was equal to 4.2%. In 2014, domestic expenditure on research and development on medical sciences were 2,790,310.0 thousand tenge, or 99.8% of total spending on

research and development (R & D), the share of development activities amounted to 0.2 (table 2). As you can see, the share of R & D expenses of Medical Sciences is the lowest value, at most accounted for engineering design and technology (42.7% in 2015).

Table 1. Gross domestic expenditure on R & D by field of science in the Republic of Kazakhstan, Million tenge

Year	2010	2011	2012	2013	2014	2015
Gross domestic expenditure, total	40 414,5	44 513,3	50 928,4	61 672,7	66 347,6	69 302,9
including						
- natural	12 075,7	14 277,6	14 993,4	22 361,4	23 556,8	25 334,2
- engineering design and technology	20 534,5	21 192,7	24 048,1	23 937,9	26 864,3	29 618,3
- medical	**1 771,8**	**2 266,2**	**1 349,7**	**3 450,5**	**2 795,1**	**2 735,4**
- agricultural	3 788,7	3 592,3	5 018,4	5 628,2	7 331,7	7 602,4
- social	1 015,2	1 343,3	2 967,7	2 857,1	1 486,2	850,5
- humanities	1 228,5	1 841,1	2 551,2	3 437,6	4 313,6	3 162,1
Note – Resouce: NEM Republic of Kazakhstan Statistics Committee //http://www.stat.gov.kz.						

Therefore, the development of modern technologies introduced in the medical field is very important for Kazakhstan. Science and innovation based on scientific development are key drivers of economic growth and social well-being of any nation seeking to achieve international competitiveness.

Table 2. Gross domestic expenditure on research and development in medical sciences by sector of activity in 2014, thousand tenge

	Total	Research and development			Experimental development
		fundamental research	application research	including: application strategic research	Design and engineering work
Total	2 795 059,0	61 708,1	2 728 601,9	43 228,1	4 749,0
Public sector	466 989,7	23 095,1	443 894,6	43 228,1	-
Higher professional education sector	770 975,3	38 613,0	727 613,3	-	4 749,0
Note – Resouce: NEM Republic of Kazakhstan Statistics Committee //http://www.stat.gov.kz.					

The development of science and innovation is fundamental in achieving competitiveness in every field of activity, including the field of public health.

Precisely high-quality research is the basis of improving the health of the population at the national level and on a global scale [4].

The success of the development of medical science is directly determined by the effectiveness of the management approaches, both at the level of the authorized body of the industry, and at the level of scientific organizations, as well as directly in the organization of activities of the scientific team that implements specific scientific projects and programs. From the results of management directly dependent on all other conditions necessary for the development of industrial science - funding, resource support, etc. [5, 6].

In this regard, the most urgent focus of the reforms in the field of industrial science is the modernization of medical research through innovative management, aimed to the development of the competitive environment of research, expansion of grant financing of research practices, to attract private business and investment in the domestic medical science and scientific development the capacity of organizations and scholars. [7]

The basis of the adoption of effective managerial and organizational decisions should be, first and foremost, obtaining objective information on the current state of science, opportunities and threats to its development.

Starting with the first years of independence the Republic of Kazakhstan, the formation of a network of specialized institutions of medical science, the preservation of the active part of the research perspective of the country's health-building, the formation of the national priorities of scientific and technological development, including in the field of medical science, placing the state order for conducting applied research in the field of health research contributed to the development of the domestic medical science.

Despite the decline in the number of scientists workers in academic health system organizations, 1101 people in 1991 to 716 in 2011, linked to the objective socio-economic factors of 90th - the beginning of the 2000s, it noted the steady development of the national scientific infrastructure health research. If in 1991 11 scientific organizations operated in the health system, by 2001 six scientific organizations were re-opened , by 2011 the number of organizations in medical science has risen to 24, furthermore, scientific studies are carried out in 8 institutions of higher and postgraduate education.

Precisely in medical education institutions and centers in recent years the main scientific potential of the industry is focused - the number of the teaching staff has increased by 29% compared with 1996. As of 2015, 27.1% of the 716 researchers are doctors of science, 42.6% PhDs, and only 1% doctors PhD (Fig. 1).

There is a tendency of aging of scientific personnel in the structure of age composition (Table 3).

Analysis of the distribution of scientific staff by sex in 2011 showed that there is a predominance of women in medical science - 71.5%, the ratio of women to men is

2.5: 1, respectively. The average age of doctors - 58.5 years and the average age of science candidates is 45.9 years.

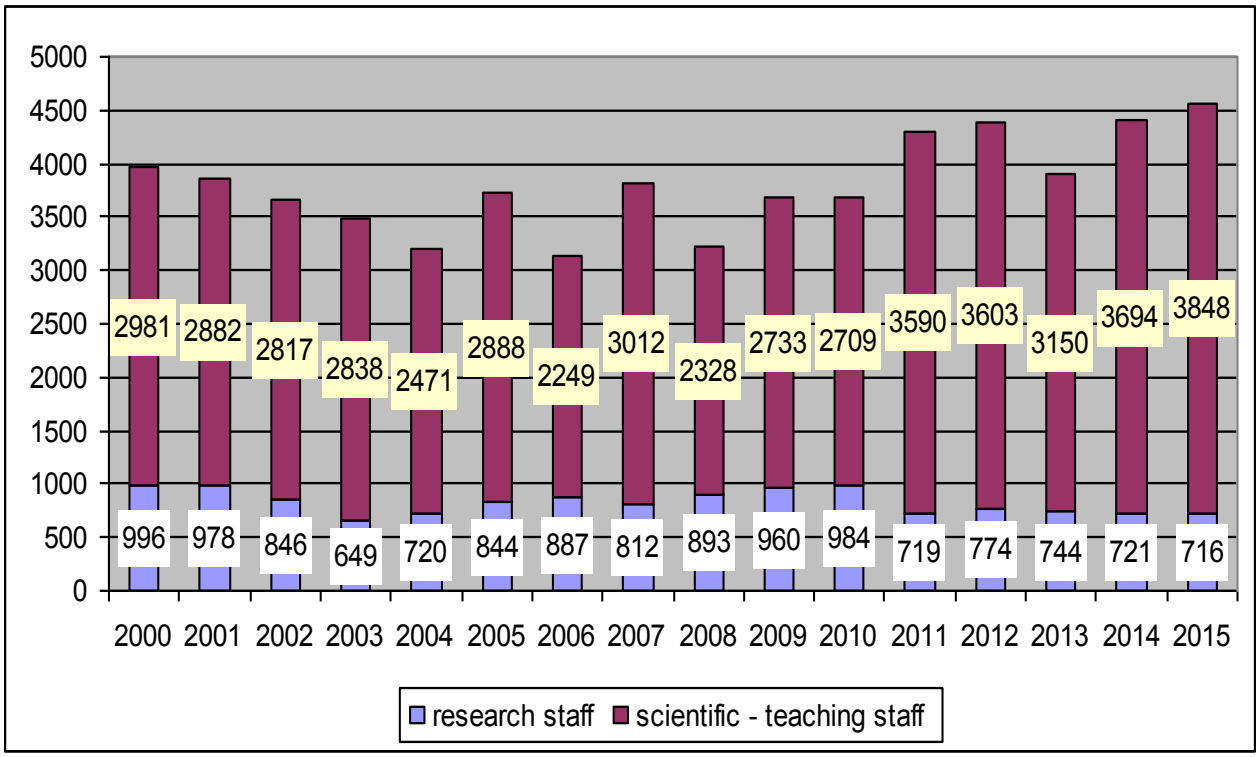

Figure 1-Number of research and scientific - teaching staff in public health for the period 1996-2011

Table 3. Structure of the age composition of researchers

	25-30 years	31-40 years	41-50 years	51-60 years	61 years and above
1995	48%	25%	17%	9%	1,5%
2005	37%	25%	12%	19%	7%
2015	12%	30%	20%	24%	14%

Number of executed scientific and technical programs (NTPs) varies from year to year. Prior to 1997, 54 STP were carried. Since 2000, 22 NTP have already been implemented, in 2007 - 56 STP, consequently funding for applied scientific research in the field of health increased(with 251.7 million tenge in 2002 to 917 million tenge in 2007..). Since 2013 there has been a decrease in the number of STP performed under the state order to 46 and in 2015 to 24. This is largely due to the transition to the target-oriented form of financing applied research, providing for the allocation of state orders for complex scientific program, in the framework of, whose head offices are required to attract a wide range of collaborators from among the other scientific organizations.

In 2013, 979.0 million. tenge were allocated for the implementation of scientific and technical programs in applied research in the field of health, and in 2014 - 1 831 million tenge. Funding for applied research in the field of health research has increased 13-fold since 2003 and amounted to 0.0065% of the GDP (Fig. 2).

For the implementation of modern management by the Ministry of Health research in 2008 the concept of reforming medical science in the Republic of Kazakhstan is realized . Measures to improve the medical management of science are initiated: in order to obtain greater autonomy a number of scientific organizations have moved to the status of joint stock companies (22%) and state-owned enterprises on the right of business (47%).

As part of the integration in education, science and practice a scientific-educational and practical research clusters and consortia are estabiiished in the industry. Thus, cluster in the system of drug treatment and scientific consortium in the field of medical ecology of the Republic of Kazakhstan are successfully operating , where the scientific and medical organizations integrate human, intellectual, financial and other resources to carry out fundamental and applied research, development, technological innovation and the training of highly qualified specialists integration with practical public health.

In order to effectively manage the research process in medical science organizations units ensuring the research process are established. So in all scientific organizations departments of management of scientific research are established, in the majority of organizations (20) centers of evidence-based medicine are set up. In addition, in a number of scientific organizations sector (departments) of Biostatistics (13), clinical epidemiology (15), patent information work (9) are established.

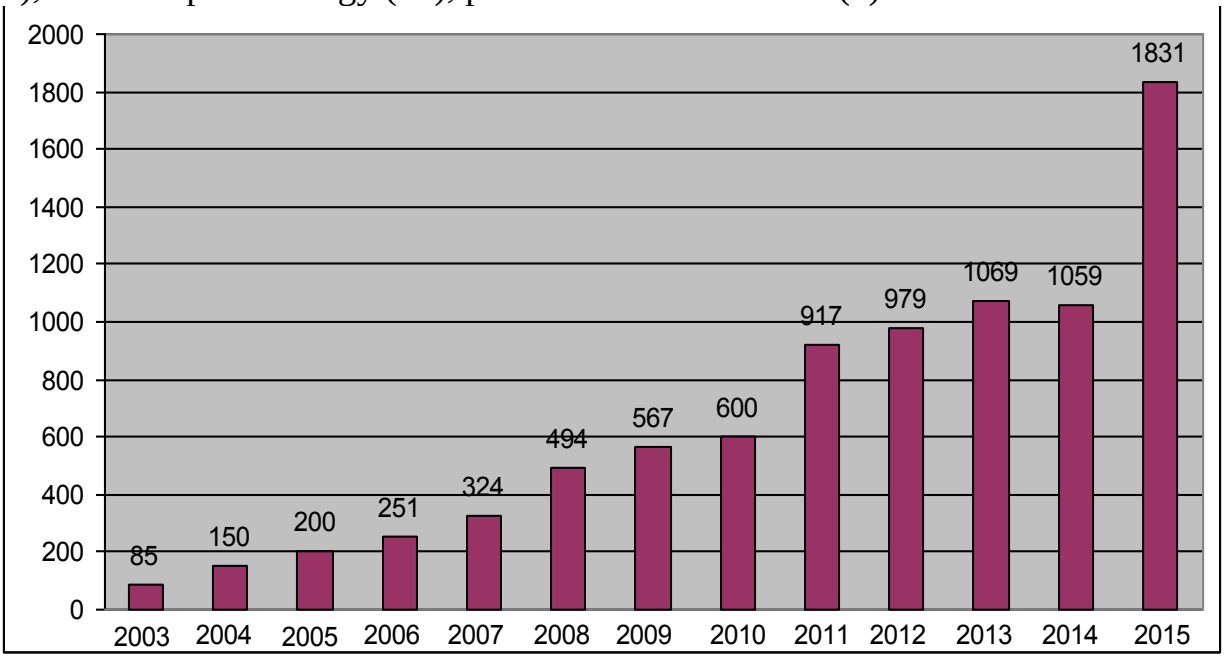

Figure 2- Expenditure on scientific studies of the health sector, Million tenge

Since 2005, in the health sector in Kazakhstan a system of ethical review of research is developing. This system is a two-step and consists of the Central Commission on Ethics of the RK Ministry of Health and 28 local ethics committees at the level of research institutes / centers of the MoH (20) and institutions of higher and postgraduate medical education (8).

As part of the Action Plan for implementation of the State Program for Health Development of the RK "Salamatty Kazakhstan" for 2011-2015 in 2012 the establishment of two genomic research laboratories on the basis of Kazakh National University named after Asfendiyarov and Karaganda State Medical University is initiated.

Developed in 2008, the rating system (indicators) of the organizations of medical science and the Ministry of Health, based on generally accepted indicators of volume and effectiveness of research activities, helped to create the conditions for expanding the volume of scientific activities, improve the productivity of research and scientific publishing. During the years of implementation of the Concept of reforming of medical science there was an increase in the share of STP performed by medical schools from 7.2 to 9.7%, the share of publications in international journals from 5 to 6.4%, the share of international patents from 0 to 2%.

Despite the abundance of medical education and science and implemented actions by the competent authorities (Ministry of Education and Science and the Ministry of Health and Social Development of the Republic of Kazakhstan) in the sphere of development and support of research activities, including in the health sector, it should be noted the presence of obvious constraints of medical science:

• ineffective management of medical science and industry resources;

• limited and unsustainable financing of scientific and medical research;

• poor material and technical base of medical science and higher education institutions;

• fragmentation of medical science and professional education with practical public health;

• lack of competitiveness and a lack of demand for domestic medical science;

• insufficient use of information and communication technology at all levels of medical science;

• Inadequate capacity of scientists in the field of scientific and medical technologies;

• underdevelopment determining suitability of the system, measures of social support and stimulation of researchers and others. [8].

Analysis of the state of medical science indicates, above all, the need to improve coordination and management of research activities.

At the core of priority measures to be taken both within the authorized body, and on the level of organization of medical science, is the phased introduction of the institution of professional management and transparent management of organizations forms of science, including the extension of their autonomy in research, finance and

management, modern development management technologies in the field of science, the modern practice of strategic planning and project management. Implementation planning, results-oriented, requires the heads of the organizations and researchers of new management skills, retraining and professional development [9].

In the activities of the organizations of medical education and science, wider international standards (GCP, GLP, GCLP, QPBR et al.) and the requirements of scientific research management system and quality management are needed to be implemented.

A number of analytical and management functions (regular monitoring of the development of industrial science, scientific, medical examination, etc.) carried out in the medical science of the Ministry of Health may need to be given to outsource subordinate organizations (eg, the Republican Center for Health Development). What is important is the broad development of scientific and medical infrastructure, a creative research environment and the introduction of common indicators for assessing progress of scientific research.

System of basic financing institutions of science and research organizations, departments of education system should provide support and development of research infrastructure of organizations performing health research, at the same time, along with state support conditions for the emergence of alternative sources of funding for medical science have to be created.

Program-oriented funding of applied research carried out by the authorized body in the field of public health should be implemented according to the priority areas for the industry. In the system of medical science there must be an effective system of setting priorities, taking into account mortality and morbidity indicators, contingent on the results of the analysis of selected foreign-treated patients on which the republic carries the most serious financial costs. The main objective of prioritizing the development of medical science is to identify ways to improve health, quality of life of the population of the republic, reduction of premature and avoidable losses of society due to morbidity and mortality in large populations, to facilitate the transition to an innovative path of development.

To implement the program-targeted programs practice of creation of consortia - network of subcontractors organizations united around the parent organization (usually a medical school) to implement research in priority areas of the programs should be encouraged.

The extensive development of the national grant system of financing applied research in the field of health research, as well as the active involvement of local scientists in obtaining international grants for research shpuld become one of the main sources of funding of medical science organizations. At the same time one of the key criteria for allocation the budget funds under the grant funding, along with scientific and practical significance, there should be a potentially high possibility of commercialization of innovations and scientific developments in the area selected for the study.

Achieving health competitiveness of scientific development is possible only if the coverage at all levels of research, including basic, applied and translational research.

Of particular interest may be the development of cross-sectoral research grants system with the concentration of industry funds provided for research in public health, the environment in a special fund medical research.

To enhance the competitiveness of research in the field of public health further involvement of additional (extra) sources of financing, including the utilization of public-private partnership, transmission facilities, equipment rental and asset management to private companies are needed. One promising area is the creation of business incubators in research institutions, support for the commercialization of scientific developments.

At the heart of improving the competitiveness of scientific research the development of multi-pivot studies, the establishment of modern research centers for collective use, fitted with equipment conforming to the highest international standards, the formation of scientific clusters, scientific consortia to ensure quality of research, increase research products (patents, publications international publications) should be based. It is necessary to eliminate the causes of alienation of scientific centers and research institutes from the practice.

International practice shows that an effective mechanism for improving the quality of research is to expand public participation trustee and supervisory boards in the development of medical science, the creation of non-governmental organizations and associations in the field of medical education and science.

The next step is to introduce the service of family doctors as well as the institute of social workers that will free primary care physicians from non-core functions. All this, ultimately, will depend on the development of education and science. This task is entrusted to the "Nazarbayev University", within which to create an integrated academic health system of this educational complex, including the National Medical Holding, Center for Life Sciences, the future medical school. The University introduced a two-stage system of training doctors, which initially held a four-course and then go on to medical school. On the whole, in the republic admission to medical schools under the state order increased, and has a 30% quota for the training of health workers provided further work in remote rural areas within three years.

Thus, Kazakhstan's health care seeks to create a model in which innovation will be combined with practical experience, high quality and ethics. As previously noted, in the context of highlighting the problems one of the measures to increase the efficiency of development of the market of medical services is the use of public-private partnerships and the development of a three-tier system of health care. Implementation of these improvement of medical services market mechanisms is particularly important scientific and practical problem.

Implementation of a cluster of regional health policy requires that certain conditions relating to the strengthening of the economic independence of health care

organizations, the development of market relations in related sectors - education, science, insurance, etc., the appearance of the regional health system entities the objective needs and the perceived need to unite on the principles of the cluster approach, the development of teaching materials and guidelines for the formation of clusters in general, and in health, and in particular in the field of prevention. It is recommended to create a medical-pharmaceutical cluster in Almaty. The system can include a cluster of Central Clinical Hospital UDP RK, Center Office of the President of sanitary-epidemiological expertise (UDP) RK Sanatorium "Almaty", Center of medical technologies and information systems, etc.

At the core of the cluster there are the contractual relationship between the parties. Creating a cluster will allow to give new impetus to the development of public health, will lead to new medical breakthroughs. In turn, these processes stimulate the emergence of new work places.

Taking everything into consideration, it is necessary to combine the elements of the market in its classical sense, and state-run institutions in the health care organization. In addition, market-based incentives should play an important role, as the monopolization of the effective demand for health services by the state, the standard distribution of funds among hospitals leads to the fact that the financial results of their work are no longer serving as reliable benchmark efficiency.

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CHAPTER 2. FACTORS AND MECHANISMS OF INNOVATIVE DEVELOPMENT OF REGIONAL ECONOMY

2.1. CREATION AND DEVELOPMENT OF TRANSPORT-LOGISTIC SYSTEM AS KEY FACTOR OF INNOVATIVE AND LOGISTIC DEVELOPMENT OF KAZAKHSTAN[6]

Abstract: In this article problems of the modern logistics centres formation in the Republic of Kazakhstan are examined; the conceptual directions of transport and logistics centres in Kazakhstan are explored. The study concluded that there is a need for a multilevel logistic centres and their development in the following areas: development of regional logistics infrastructure of common use, both domestically and in the major transportation hubs; development of trade logistics infrastructure in the regions; development of logistics centres based on customs and service firms, creation and development of foreign trade and logistics centres; development of logistics infrastructure in the enterprise.

Article proposes a set of measures to eliminate barriers to the development of qualitative logistics service.

1. Introduction

Kazakhstan is located at the crossroads of major transport routes and is therefore the best place to organize transport and logistics centre (TLC). Five international rail transit routes, six international transport corridors and several major pipelines pass through the territory of the republic.

Considering the intensification of the trade and economic relations between Europe and Asia, creation of the Eurasian Economic Union, volume of transit goods through Kazakhstan will increase annually by at least 15-20% (Zhadraliyev, 2009). Thus, the country has the potential to stimulate transit traffic through its territory. According to experts, due to logistics in member countries of the Customs Union 10-12% of GDP is formed. In the EU the figure is 20-25% (Urkimbaev, 2014).

One of the tools of logistics development in the Republic of Kazakhstan is the construction of logistics centers (LC). According to the Transport Strategy of the Republic of Kazakhstan till 2015 and the state program of infrastructure development and integration of the transport system of the Republic of Kazakhstan until 2020 is necessary to establish logistic centers (TLC) in all regions of Kazakhstan with the expansion of services for transport and logistics services (Transport Strategy of the Republic of Kazakhstan, 2006, State infrastructure development program up to 2020,

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2013). To date, there is an acute shortage of warehouse spaces of Class "A", "B" and quality of logistics services.

As seen from (Table 1), trucking is up 97%, freight forwarding services are 2.5-3.0%, logistics management is 0.5% in the structure of the logistics services market of Kazakhstan. This is well below the global and Russian indices.

Data from the (Table 1) show that Kazakhstan lags behind global trends for the development of logistics services management component and complexity of their provision.

Table 1. Structure of the logistics services market in the world, Russia and Kazakhstan (2011)

Types of logistics services	World, %	Russia, %	Kazakhstan, %
Trucking and freight forwarding services	69,0	95,5	97,0
Integrated logistics services, including except trucking and freight forwarding services, services for storage and distribution of goods (warehousing and distribution)	19,0	3,6	2,5
Logistics Management (outsourcing), including stock management services, integrated planning, optimization of logistics business processes	12,0	0,9	0,5
Total logistics services	**100**	**100**	**100**

Based on the analysis and projected annual growth rate of production in Kazakhstan (up 8%) and retail trade turnover (9-15% per year), as well as considering the increase in purchasing power of the population, in our opinion, we can assume that in the coming years the rate of logistics market growth will not fall. It is estimated that its annual volume currently in Kazakhstan is about 20 - 24 billion dollars, and the potential is estimated at 40-50 billion dollars.

Problems of Kazakhstan logistics market

When studying the features of logistics development in Kazakhstan as a whole and creation of modern transport and logistics complexes, we identified many obstacles at all stages of the implementation of major logistics projects (Raimbekov and Syzdykbaeva, 2012, 2013):

(1) The relatively low efficiency of logistics;

(2) Absence of the concept of development and determining the location of logistics facilities in the interests of businesses, local population and the state;

(3) Absence of a common legal framework governing all stages of the large logistics centre creation during the design, construction and operation. Taking into account the state's participation in the implementation of logistics projects, we consider the creation of a legislative framework is extremely necessary.

Let’s examine the above mentioned problems in more details:

(1) Many countries pay special attention for the development of transport and logistics systems (TLS), while the best international practice emphasizes the priority

of TLC management systems improvement and removing non-physical constraints on a par with the development of proper infrastructure assets.

Thus, according to the World Bank report on the developed Logistics Performance Index (LPI), Kazakhstan in 2014 took 88th place out of 160 surveyed countries, dropping by 2 points compared with 2012 (86th) and 26 points compared with 2010 (62 place) (World bank, 2014). Largely low rating of our country according to 2014 is explained by the underdeveloped transport and logistics infrastructure (121 place against 79 place in 2012), shortcomings in the work of the customs authorities (121 place against 73 place in 2012), low level of transport and logistics services (132 place), the complexity of the international goods supply organization (100 place against 90 place in 2012), the catastrophic shortage of graduates in logistics and supply chain management (83 place against 74 place in 2012) (Table 2).

Table 2. Position of Kazakhstan in logistics performance index (LPI) in 2007-2014

№	Indicators	2007		2010		2012		2014	
		place	points	place	points	place	points	place	points
	Logistics Performance Index, including	**133**	**2,12**	**62**	**2,83**	**86**	**2,69**	**88**	**2,70**
1	Efficiency of the clearance process (i.e., speed, simplicity and predictability of formalities) by border control agencies, including customs	139	1,91	79	2,38	73	2,58	121	2,33
2	Quality of trade and transport related infrastructure (e.g., ports, railroads, roads, information technology)	138	1,86	57	2,66	79	2,60	106	2,38
3	Ease of arranging competitively priced shipments	129	2,10	29	3,29	92	2,67	100	2,68
4	Competence and quality of logistics services (e.g., transport operators, customs brokers)	126	2,05	73	2,60	74	2,75	83	2,72
5	Ability to track and trace consignments	117	2,19	85	2,70	70	2,83	81	2,83
6	Internal logistics costs	96	2,81	-	-	-	-		
7	Timeliness of shipments in reaching destination within the scheduled or expected delivery time	120	2,65	86	3,25	132	2,73	69	3,24

Source: http://lpi.worldbank.org/international/scorecard/line/255/C/KAZ/2014

Among the six indicators of LPI the indicator - timeliness of shipments (69 place in 2014 against 132 place in 2012) – is the best. Low levels of rating require the implementation of a set of measures to improve these indicators.

(2) The following problem is absence of a unified concept of the TLC creation and development in Kazakhstan. Considering the chaotic and haphazard creation of logistics facilities, not taking into account the strategic objectives of economic development, we believe that there is the need for a unified concept, taking into account the optimal location of TLC. We also believe that the constraining factor of logistics development in Kazakhstan is some underestimation of TLC public utility by authorities, which carries a huge social impact that is expressed, primarily, in the organization of new workplaces. Large LC is a major employer of several thousand people. For example, in 31 LC operating in Germany work about 45 thousand people, including 5 thousand employees of the first German TLC in Bremen and 3.7 thousand people of the center, located in Grosbeeren (Sergeev, 2012). Similar situation is in other European countries.

The experience of countries with developed economies shows that virtually every major logistics object is built on the principles of public-private partnership in any form: public investment, concession, creation of free economic zones (Nizhegorodtsev et. al, 2012). So from our point of view, making the choice of the TLC construction place is necessary to consider not only economic but also social factors.

(3) Another restraining reason for the TLC development in Kazakhstan is the lack of a legislative framework in this direction. State participation in the implementation of large-scale logistics projects is one of the attributes of TLC. This is due to many reasons, among which are the following: high payback of logistics projects. According to some experts, the payback period can be up to 10 years. Naturally, in an unstable economic situation business is not ready to invest in "long money".

In Kazakhstan there is a lack of modern storage facilities and terminals of "A" class. Most of the existing facilities are centred around Almaty (Raimbekov and Syzdykbaeva, 2012). For coordination and consolidation the efforts to develop the TLC is necessary to develop the concept and comprehensive program of its development. This requires the problem solution – what are the directions to develop the TLC and terminals.

2 The state of development of the transport system and logistics in Kazakhstan

2.1 Development of transport system of Kazakhstan

The transport sector is one of the basic industries of Kazakhstan and is about 8 per cent of GDP. Employment rate is 7.0 per cent; fixed assets are 14.0 per cent. The turnover of the transport sector is increasing rapidly due to dynamic passenger and freight traffic.

The country is bordered to the north with the Russian Federation; in the east - with China; in the south - with the Kyrgyz Republic, Uzbekistan and Turkmenistan;

in the west - the Caspian Sea. The total length of the border is 12012 km (7459 miles).

Extremely important role of transport in Kazakhstan is due to factors such as a significant area of the country (2724900 sq. km), stretching from east to west about 3 thousand km and from north to south is almost 2 thousand km; low population density - 5.5 people per 1 sq. km; population - 17.5 million. people; considerable distance of cargo transportation; the nature of the products that require moving for large distances (coal, iron ore, petroleum products, products of iron and steel industry and agriculture (grain, wool, meat)); transport and geographical position of the country, through which are significant flows of transit cargo.

The length of the ground transportation routes of the republic is 106 thousand km. Of these, 96873 kilometers (km) are of highways; 15341 km are of railways; 4151 km are of inland waterways; up to 61000 km are of air routes. The length of the main pipelines is: pipelines - 12318 km and oil pipelines - 7920 km. Road and rail transport performs 93.4 per cent of the total transportation of goods. However, the transport networks are in poor condition, with obsolete infrastructure and outdated technology (Mozharova, 2011). Transportation costs account for 8-11 per cent of the final cost of the goods, whereas in industrialized countries, the figure is 4-4.5 per cent. The backbone transport network in the region is a typical linear-tree nature has insufficient density and does not cover the entire territory of the republic.

Kazakhstan has established a network of transit routes in three priority areas: 1) Russia - the countries of Europe and Asia; 2) China, Japan and South-East Asia; 3) The countries of Central Asia, the Caucasus, the Black Sea, the Persian Gulf and Turkey.

In each of these areas across the country are 5 existing international transport corridors:

1. Northern Corridor of Trans-Asian Railway (TARW). Western Europe - China, Korea, Japan through Russia and Kazakhstan (section Dostyk - Astana - Petropavlovsk);

2. Central (Central Asian) corridor. Central Asia - Russia and the EU (Saryagash – Aris – Kandagach – Ozinki);

3. Southern Corridor of TARW. South-Eastern Europe - China and South-East Asia through Turkey, Iran, Central Asia and Kazakhstan (section Dostyk - Saryagash);

4. North-South. Northern Europe - Gulf States via Russia and Iran with the participation of Kazakhstan in the seaport area Aktau - Ural and Aktau - Atyrau);

5. TRACECA. Eastern Europe - South Caucasus - Caspian Sea - Central Asia (Dostyk - Aktau).

The advantage of Kazakhstan is the fastest delivery time.

Also six international transport corridors and several major pipelines are held.

Currently, the capacity of the international transport corridors passing through the territory of Kazakhstan and competing with the sea and other land routes is not fully realized.

This requires a departure from the traditional "narrow departmental" approach and the application of the new modern paradigm, including the relationship of subjects of transport and logistics business, regulatory agencies, customs and border management, as well as the infrastructure, in accordance with the best international practices in Germany, England, USA , United Arab Emirates and Singapore.

2.2 Indicators of cargo

The economic and geographic features, including a large area and focus on exports, making the economy of the Republic of Kazakhstan one of the most cargo intensity in the world and determine high dependence of the transport system.

In recent years, the volume of freight traffic, as well as investment in transport and warehouse were significantly increased. In 2013, it was transported by all modes of transport 3.508 billion tons of cargo, which was 60.3% more than in 2008 (Table 3). Levels of investment were considerably increased in the transport sector. In 2013, it was invested 9.5 billion USD.

Compared to 2008, the increase was 52.4%. Cargo turnover in 2013 increased by 134% compared to the level of 2008 and amounted 495.4 billion ton-kilometers. Foreign trade turnover also grew by 22.4%, but its share in GDP has been steadily declining, indicating that the temporary deterioration of trade relations due to the crisis. In 2013, exports and imports in the total trade turnover were respectively 84.7 and 48.8 billion USD.

More than half of the cargo transported in the country's public transport accounted for road transport that is a priority for the delivery of goods to the regions of the republic.

In 2013, in the structure of cargo transportation by transport mode, share of road transport was accounted for 85.0%; of rail transport was accounted for 8.4%.

The share of rail transport in the total cargo turnover exceeds 50%; the share of vehicles is more than 27%; there is underdevelopment of cargo by air transport (less than 1%); the share of water transport is less than 0.2%.

There is an increase in traffic and turnover by about 6-9% per year; cargo growth is observed in all modes, except for river and air; there is modal shift.

The constant increase in traffic at a constant length of roads leads to increased utilization of existing transport routes and logistics infrastructure in Kazakhstan.

In recent years, freight traffic has increased significantly, but the demand for services of logistics operators practically didn’t grew up. The companies are still engaged in transportation and storage of goods independently and are in no hurry to give logistics on outsourcing.

Table 3. Main indicators of transport development in Kazakhstan

	2008	2009	2010	2011	2012	2013	Growth rate 2013/2008, in%
GDP, mln. USD	130038,0	115306,0	146906,0	188050,0	203521,0	231875,1	178,3
Foreign trade turnover, total, mln. USD	109 072,5	71 604,4	91 397,5	121 241,7	132 807,2	133 506,0	122,4
per cent to GDP	83,8	62,1	62,2	64,5	65,2	57,5	68,6
Exports	71 183,5	43 195,8	60 270,8	84 335,9	86 448,8	84 700,4	118,9
Imports	37 889,0	28 408,6	31 126,7	36 905,8	46 358,4	48 805,6	128,8
Transportation of cargo by mode of transport, million tons	2188,7	2103,3	2439,4	2974,9	3231,8	3508,0	160,3
Turnover, billion tkm	369,7	337,0	385,3	448,8	478,0	495,4	134,0
Investments in fixed assets on transportation and warehousing, mln. USD	6270,6	6560,8	4984,8	6113,2	6966,3	9555,4	152,4
Income from transport and auxiliary transport activities of enterprises, mln. USD	11170,3	9481,4	11871,0	13253,0	14655,6	16517,7	147,9
Cargo intensity, tkm / $ 1	2,8	2,9	2,6	2,4	2,4	82,7	2912,0
The average distance of transportation, km	168,9	160,2	157,9	150,9	147,9		0,0

In the total volume of freight traffic in 2013, 57.2% are cargo within the country (48.9% are interregional communication), 21.1% are in the export, 3.5% are in the import and 17.1% are in transit traffic.

Over the last 5 years (2009-2013) income from carriage in Kazakhstan is constantly growing. For 2013 total revenue exceeded 8.78 billion USD. The income from the transport of goods was as follows: in the interregional communication - 36.6%, in export traffic – 23%, in import - 7.9%, in transit traffic - 31.2%, that is there is a tendency to increase the income of transit cargo.

62% of all income from carriage falls on the international trend, indicating the primary upgrading and improving the quality of transport and logistics infrastructure, serving international cargo transportation, especially transit.

In this regard, for maximum use of the transit potential of the country are needed 'breakthrough' projects. Reconstructed new transport corridor 'Western Europe - Western China' meets these requirements; its total length is 8445 km, of which the Kazakh section is 2787 km, 2233 km are of the Russian Federation, 3425 km of China. The project cost of the Kazakh section is 5.65 billion USD. The project realization will redirect part of Chinese goods from sea transport by road (45 days by sea versus 11 days by motor transport through Kazakhstan) (The economic and social effects of the project 'Western Europe-Western China', 2013).

In the total share of the goods' carriage the share of South and Central corridors of TARW takes 90% (Table 4). These transport routes can significantly reduce the distances in the East - West and delivery of goods.

Table 4. Dynamics of the volume of cargo transportation, million tons

Years	Traffic volumes, total (million tons)	Of these, the main thoroughfares (road, rail, air, water, etc.) (thousand tons)				
		North - South	TRACECA	Northern Corridor of Trans-Asian Railway	Southern Corridor of Trans-Asian Railway	Central Corridor of Trans-Asian Railway
2007	2124,1	0,0	21,3	41,8	1506,7	554,2
2008	2188,7	0,0	19,1	53,8	1697,3	418,5
2009	2103,3	0,0	20,3	61,2	1520,2	501,6
2010	2439,4	0,0	36,9	96,3	1545,4	760,8
2011	2974,9	32,8	85,8	121,4	1897,4	837,5
2012	3231,8	44,8	105,2	145,6	1974,8	961,4
2013	3508,0	75,5	115,7	156,2	2135,3	1025,3

The transport capacity of the trans-Asian railway system is not used to full capacity, only about 30% (Vinokurov et al., 2009).

From all modes of transport rail transport along the Euro-Asian routes has great potential to become more competitive in terms of travel time and fares. The transport operators must speed up delivery time and improve the quality of service to meet the demand, while governments and investors need to modernize the infrastructure and harmonize national legislation.

2.3 State and prospects of logistics development in Kazakhstan

The logistics development in Kazakhstan affects, first of all, the high dynamics of economic development, which requires an appropriate evolution of the transport system that can effectively serve the logistics needs of the economy. GDP growth on average for 2006-2007 was 10.2 per cent, in 2008-2009 was 2.3 per cent, and in 2010-2014 was 6.0 per cent (Agency of the Republic of Kazakhstan on Statistics, 2014).

Given the intensification of trade and economic relations development between Europe and Asia, establishment of the Eurasian Economic Community, the volume of transit cargo through Kazakhstan will increase annually by at least 15-20 per cent (Jadraliyev M., 2009). Thus, the country has the potential to promote transit traffic through its territory. According to experts, 10-12 per cent of GDP in member countries of the Eurasian Economic Community is formed at the expense of logistics. In the EU the figure is 20-25 per cent (Urkimbaev, 2014). The country has high transit potential. There was created a well-developed network of transit routes through Kazakhstan.

One of the tools of logistics development in the Republic of Kazakhstan is the development of logistics infrastructure (logistics centers, logistics parks, logistics areas, distribution centers, warehouses, etc.). According to the Transport strategy of the Republic of Kazakhstan till 2015 (2006) and the State program for the development and integration of transport infrastructure of the Republic of Kazakhstan till 2020 (2013), the country plans to establish transport and logistics centers (TLC) in all regions of Kazakhstan with the expansion in the transport and logistics services.

In the logistics market structure of Kazakhstan trucking account for 97 per cent, transport-forwarding services account for 2.5-3.0 per cent, logistics management is 0.5 per cent, which is significantly lower of world figures; they are respectively 69, 19, and 12 per cent (Raimbekov and Syzdykbaeva, 2014). Kazakhstan is far behind the world trends in the development of the management component of integrated logistics services and their provision.

Based on the analysis and projected annual growth rate of production in Kazakhstan (up to 8 per cent) and retail trade turnover (9-15 per cent per year), as well as taking into account the increase in the purchasing power of the population, in our view, we can assume that in the coming years the growth rate of logistics market will not fall. According to estimates, its annual output to date in Kazakhstan is about 20-24 billion USD.

Over the past five years, the number of logistics and transport forwarding companies increased by 76 per cent and amounts to 92. Almost 60 per cent of them are located in Almaty. 80 per cent of transit goods due to lack of storage infrastructure are processed in Almaty, and then sent back to the region.

The reason for the poor development of logistics services is that they have not yet quite in demand in the regional markets of Kazakhstan.

Underdevelopment of 3PL-services market in the Republic of Kazakhstan actually does not allow for the minimization of logistics costs. Transmitting logistics on outsourcing for logistics operators, logistics costs in the final price of goods remain high.

The main problems of logistics:

1) The relatively low efficiency of logistics.

According to the World Bank's report in 2014, Kazakhstan took 88th place on logistics performance index (LPI) out of 160 surveyed countries, down 2 points compared with 2012 (86th place) and 26 points compared to 2010 (62 place) (World Bank, 2014).

Largely low rating of our country according to 2014 is due to the underdevelopment of transport and logistics infrastructure (121st place against 79 in 2012), shortcomings in the work of the customs bodies (121 place against 73 in 2012), a low level of development of transport and logistics services (132 place), the complexity of the international supply of goods organization (100 place against 90 in 2012), a catastrophic shortage of graduates in logistics and supply chain management (83 place against the 74 in 2012).

The average logistics performance index in Kazakhstan in points in 2000-2004 is 2.66; in 2005-2009 is 2.6; in 2010-2014 is 2.38 (World Bank, 2014), that shows their deterioration.

The low rating requires the implementation of a set of measures to improve these indicators.

2) The problem is the absence of a unified concept of transport and logistics center (TLC) creation and development in Kazakhstan (Syzdykbaeva and Raimbekov, 2012). Taking into account the chaotic, unsystematic creation of logistic facilities not taking into account the strategic objectives of the country's economic development, we consider that there is need for a common concept, which takes into account the optimal location of TLC. We think that limiting factor of logistics development in Kazakhstan is an underestimation of the authorities of TLC's public usefulness, which carries a huge social effect - first of all, creation of new jobs. Large logistics center (LC) employs several thousand people (Sergeev, 2012).

3) Limiting factor of logistics development in Kazakhstan is the absence of a legal framework and a special state program on the development of the TLC network.

Warehouse logistics

The situation in warehousing is worse. According to poll results, 60 per cent of companies in Kazakhstan using the premises of class "C", which implies their low adaptability to the storage of goods (Report of the Entrepreneurship Development Fund "Damu", 2012).

However, the features of territorial development of industry, trade, external relations explain the unevenness in equipping regional transport and storage infrastructure. The high concentration of warehouse business is in Almaty, Astana and Aktobe.

If the supply of modern warehouses in European cities is from 500 to 1200 sq.m per 1000 inhabitants, then in the prosperous region - Almaty and Almaty region - it is about 200 sq.m (Tityukhin and Ovcharenko, 2011). These data show the backlog in provision with modern warehouses of the most logistically developed cities of Kazakhstan from some European capitals

For the period under review in the Republic of Kazakhstan (2008-2013) retail trade turnover grew by more than 3 times. Over the past 3 years growth rate accelerated and accounted for more than 13.5 per cent per year.

In 2013 738 warehouses were registered in Kazakhstan. 607 of them (82 per cent) were small, 126 (17 per cent) were average, 5 (1 per cent) were large enterprises.

The big problem is the absence of a national standard for warehouse complexes and logistics centers.

Professional warehouses occupy only 2 per cent of the market (Class A), 13 per cent is converted from hangars, shelters, and other industrial buildings – semi-industrial warehouses (Class B) and 85 per cent of warehouses that do not meet modern requirements (categories C and D).

The main barriers hindering the development of the warehouse property market by experts are blur classification of storage facilities, absence of relevant recognized standards of quality, and absence of civilized land market and deficit of areas with an appropriate infrastructure (Report of the Entrepreneurship Development Fund "Damu", 2012).

2.3 Trends in development and deployment of logistics centers

The first initiative to develop TLC in Europe appeared in 60-70 years of the last century in France, Italy and Spain (Notteboom and Rodrigue, 2009; Wilmsmeier et al., 2011). But intensive development began later in Germany when adjusted system interaction of seaports and railways (DB). Since 1992 began the creation of a national network of TLC on the base of 44 intermodal terminals, that were owned by the company DB BAHNTRANS (Ostapchuk, 2007).

Since the 1980s, the United States and other countries have entered a "new era in product distribution" (Hesse and Rodrigue, 2004). The economy is largely dependent on the effective and more globalized product distribution network and accuracy of the operations performance ("just in time"). This led to a reduction in the number of product inventory, but on the other hand - was accompanied by an increase in distribution centers (Movahedi et al., 2009): global supply chains, requiring spatial organization of logistics infrastructure that affect the efficiency of the goods' distribution in the distribution network.

Between 1980 and 2000, many governments in Western Europe were actively involved in the construction of logistics facilities: transportation center; Cargo Village; intermodal hub (activity center); logistics platform; logistics hub; Intermodal

Terminal and others (Freight Village-2000, 2000). They have seen this as an opportunity to influence the development of regional economy and resolve traffic problems associated with the dominance of road transport in the freight transport. The intervention of these countries' governments took the form of programs, the result of which was the implementation of TLC network.

The location of the object plays an important role in the strategic planning of the logistics supply chain. Melo, Nickel and Saldanha da Gama's (2009) work showed an increase in research aimed at the strategic and tactical / operational planning of supply chains in the various sectors of the economy. However, there was no data on the planning of logistics supply chains on a regional or country context.

The most effective logistics center (LC) is when it functions in the sea and river ports, major railway and network-wide transport hubs (Roso et al., 2009).

A new trend in the development of logistics outsourcing in the EU was creation of a pan-European system of product distribution, providing multiple bearing European LC and interact with regional logistics transport and distribution centers, for example, logistics on a European scale (Jevtic and Radmanovac, 2008). This solution was designed to accelerate progress of commodity material flows, to ensure the continuity of commodity circulation process, to reduce inventory and costs.

There is no single model of territory service through the establishment of a support network of LC, since the conditions of each specific landfill significantly different. The service of a particular LC is determined by economic benefit to consumers of logistics services, as well as social and environmental benefits for the residents of the region (Hesse, 2004).

Along with the formation of LC in the form of distribution centers in Western Europe and the United States by large companies producing consumer goods there are international logistics centers, accumulating, cargo handling, distribution and delivery of goods to many countries (Rodrigue, Debrie and Fremont, 2010), directed on the development of intermodal transport corridors for inland terminals with state participation (Sweden), mixed operation of government and business (Scotland) and the private sector with minimal government participation (United States) (Wilmsmeier et al., 2011).

Location of logistics centers is a key element in improving the efficiency of urban freight transport. Public authorities should take into account the importance in terms of economic, social and environmental impacts, before announcing territory as LC (Congjun et al., 2015).

The globalization of markets requires a new approach to the development of transport and logistics infrastructure - making the transition from single to the network. Thus, the two-tier system of TLC of DB Shenker Company allowed Germany to become Europe's largest distribution center of freight traffic. Support hubs are located in key European transport corridors, covering the freight traffic of the North (Malmo), South and South-East (Salzburg), the West and South-West (Paris), wherein the central hub in Friedewald integrates the entire system into a

single unit. The second level consists of a network of many smaller terminals of DB Shenker and their partners throughout Europe.

Network solutions of the Canadian Pacific include associated with roads and railways sea ports (east and west coast of North America) and 145 intermodal freight terminals, transshipment points, freight yards (Ireland et al., 2004). The network of transport and logistics centers of the Canadian Pacific is linked to the centralized control system, a single process, and provides connectivity of territories in the US and Canada, as well as access to key maritime trade routes in the direction of Southeast Asia and Europe.

The direction of cargo flows' movement influences the development of transport and logistics.

Investigation of cargo import and export to China (Zhang and Figliozzi, 2010) revealed that transit time and reliability of transportation have important influence on logistics performance indicators. Shortages of advanced technologies, workload, fuzzy coordination of goods movements and protection at the local level have a significant impact on the competitiveness of Chinese companies.

Logistics costs in Kazakhstan are very high and vastly exceed the level of developed countries. So, today in Kazakhstan the share of logistics costs is up to 25 per cent of the cost of the final product. While the world average figure stands at 11 per cent, China 14 per cent, the EU 10-13 per cent, the USA and Canada 10 per cent, and Japan 14 per cent of GDP (Waters, 2007).

The creation and use of LC and enhance their competitiveness are studied in many foreign studies. Also were examined the problems of improving the competitiveness of megacities in Mexico (Alarcóna et al., 2012) and Istanbul (Ozdemir, 2010), US macro-Atlanta due to LC development in large metropolitan areas, which gives great socio-economic and environmental benefits for the city and the region. This approach, according to the authors, allows the public authorities planning the logistics infrastructure in order to reduce costs. There is also the lack of coordination between the authorities of the city and county in regard to the LC location. This is due to narrow regional approach and the lack of a common regional approach to solving problems. It should be noted that in Kazakhstan, these issues are in the competence of the government, and only it can solve the problems of distribution and development of TLC.

TLC development in the CIS countries, primarily in Russia, Ukraine, Belarus and Kazakhstan takes place on the same principles, as is customary throughout the world, but has its own characteristics (Prokofieva, 2012; Kurochkin, 2013; Smirnov and Kosareva, 2008; Tulendiev, 2009). The territory of the usual TLC is 10-100 ha, but can range up to 150 hectares, depending on the volume of services. In many countries there are no regulations on the establishment of TLC, including Kazakhstan.

In terms of the most important global trends in Kazakhstan are the following:

- The development of a multi-level and effectively managed network of internal and external transport and logistics centers as a cargo management system on a vast geographical area (Germany) (Hesse, 2004);

- The concept development of "dry ports" near major producers and consumers (USA, Mexico) (Rodrigue et al., 2010; Wilmsmeier et al., 2011; Dablanc and Ross, 2012);

- The creation of transnational multimodal integrators on the basis of the largest companies that perform the task of accelerating development of the logistics part of the vast geographical area (Germany, Canada) (Ireland et al., 2004);

- The introduction of the principles of supply chain management and contract logistics;

- Improving the efficiency of customs procedures (Singapore). For example, the establishment of an efficient customs has become one of the key factors in the development of Singapore as a global trading hub;

- Raising the level of containerization;

- The introduction of innovative and information technologies;

- The creation of attractive conditions of service of transport companies;

- The tendency to improve the quality of logistics services amid growing competition;

- Development of networks of airports and high-speed railway lines for passengers.

Kazakhstan TLC is relatively small in capacity, but is a key segment of the transportation sector of Kazakhstan, which has great development potential.

However, today in Kazakhstan there is a significant need in modern multifunctional and multimodal TLC, based on the regional characteristics of cargo distribution (export, import, transit) in the Republic of Kazakhstan on aggregate points (Syzdykbaeva and Raimbekov, 2012).

3.Methodology

Analysis of existing literature and study practices of foreign countries, as well as expert survey of the companies' specialists involved in the provision of transport and logistics services, customers of logistics services (retail chains, distributors of goods). Review materials of consulting companies on the market of transport and logistics services in Kazakhstan and statistical materials of the RK Statistics Agency were used.

Purpose of the study

Purpose is to define the conceptual direction of TLC in Kazakhstan.

For this purpose the following objectives are: identify the structure and trends of the global and domestic market of transportation and logistics services, as well as specific development problems of TLC in Kazakhstan; assessment of prospects and conceptual directions of TLC infrastructure.

4.Results

Specialization of TLC development in the region is advantageously carried out in consideration of specific properties of the products (goods), characteristic for the countries of the region.

Kazakhstan is characterized by the following structure of logistics:

- Logistics of consumer goods (all regions);
- Food Logistics (all regions);
- Logistics of agricultural products (the northern and southern regions);
- Logistics systems of accumulation and distribution;
- Information Logistics (all regions);
- Transport logistics (for all regions);
- Industrial logistics (for all countries in the region).

Required TLC in the regions must conform for storage, processing and rapid distribution of the next group of export and import goods, based on the needs of market size:

- Cotton goods (cotton fiber, yarn, textiles, etc.);
- Consumer goods and household goods;
- Agricultural goods (melons, vegetables, fruit, canned fruits, dried fruits, perishables, etc.);
- Foods;
- Grain cargoes;
- Construction materials;
- Ferrous and non-ferrous metals;
- Bulk cargoes;
- Technological goods (machinery for various purposes, equipment and accessories);
- Containers;
- Fuel and energy products;
- Chemicals and fertilizers;
- Oversized and heavy cargo.

Existing in the country today terminal and storage facilities in the best case can be specialized, mainly for processing, storage and distribution of cotton, agricultural, food, grain, construction and chemicals, as well as consumer goods and household goods. However, they do not meet modern requirements with their technical capabilities and equipment, and are not arranged systematically, without mutual binding to each other, sometimes without reference to the transport networks and data communications, have different capacities and are used only for temporary storage. Often, due to lack of TLC, the same types of cargo in small volumes are located in different warehouses. In this regard, it is impossible to ensure the integrity of the supply chain delivery with the provision of transport and technological complex,

customs and related services in one place, the implementation of which could be produced on the territory of the TLC.

Logistics system of Kazakhstan should include the totality of TLC. TLC will be formed according to the sectorial focus. However, in our opinion, it is necessary to develop wholesale logistics (trade) and multifunctional TLC.

It is a strategy for infrastructure development of multilevel regional TLC: regional transport and logistics infrastructure; logistics infrastructure on the territory of Kazakhstan in the areas of attraction to the international transport corridors; trade logistics infrastructure in the regions; logistics infrastructure in the enterprise.

In our opinion, the TLC multilevel system should include the following elements (Table 3).

Based on the Strategy objectives, analysis, problems, opportunities and threats facing the sector of logistics and trade in Kazakhstan, we have identified a number of key areas of logistics development in Kazakhstan:

(1) Development of regional transport and logistics infrastructure involves the creation of public use TLC both within the country and in the major border transportation hubs.

(2) Development of logistics trade infrastructure in the regions involves the creation and development of wholesale and logistics centers of trade with consumer goods and products of industrial and technical purposes.

(3) Creation and development of foreign trade and logistics centers.

(4) Creation and development of logistics centers based on customs-service firm.

(5) Reconstruction and expansion of logistics infrastructure on enterprises of various industries, primarily industrial and agro-industrial complex.

Development of logistics infrastructure in these areas, in our opinion, should be as follows.

1) Development and creation of public TLC both domestically and in the major border transport hubs

The main ones are located in the major network-wide nodes (border crossing "Dostyk" on the border with China) and sea ports (the port of Aktau on the Caspian Sea), the public is to serve exports and transit.

The purpose of TLC is the strategic positioning of Kazakhstan as a powerful transport and logistics hub in Eurasia. For the development of exports is necessary to develop the Aktau port, TLC in Dostyk, Khorgos and Almaty (Figure 1).

Using the European experience, the support of the system will be based on a network of border TLC, of which the most important will be the Eastern Gate - Khorgos and Dostyk and West Gate - the port of Aktau, and TLC, are in places of export origin and transit traffic intersections.

The main axis of the transit system Lianyungang / Chongqing / Urumqi - Dostyk / Altynkol (Khorgos) and father in Russia / Belarus / Ukraine / Baltic States / Europe

will work on attraction of cargo flows through Kazakhstan, mostly from China and South-East Asia to Europe and Russia (Figure 1).

All these TLC should be integrated into regional logistical transport - distribution systems based on the formation of a unified system of organizational, economic, information and legal support system of control freight and goods movement.

Given the huge size of the country, the scale of industrial production, an extensive network of railways also need a system for medium-capacity roads and road and rail terminals with an area from 8-10 ha to 15-20 ha. Their formation can take place on the basis of existing transport companies and warehouses, freight yards and railway marshalling yards in regions of cities with a strong potential for freight traffic in major industrial areas, such as Karaganda, Ust-Kamenogorsk, Semey, Taraz, etc.

The analysis shows that the largest cargo import and export of goods originates and is repaid in Almaty, Astana, Aktobe, Pavlodar, Shymkent, Aktau and Atyrau (Tulendiev, 2009). These cities need to create territorial public TLC.

Formed in these cities freight export cargo will be consolidated with transit traffic of the regional TLC.

Integration into the global transport and logistics network is realized through the development of a TLC network on the territory of the Republic of Kazakhstan, cooperation with external TLC and network EurAsEC (Figure 1).

2) Creation of logistics centers for maintenance of internal trade, for example, the creation of wholesale and distribution logistics centers

Wholesale and logistics centers should be formed on a territorial basis with the possibility of specialization in the types of goods and freight traffic. This requires the creation of two types of wholesale structures - republican and regional. Republican wholesale and logistics centers with a central office and warehouse in Almaty and branches in the regions provide a supply of goods for the needs of consumers in all regions. Such wholesale and logistics centers have great prospects in wholesale trade in building materials, wood products and chemicals, clothing, footwear, knitwear, electrical appliances, household goods and food products. Regional centers of wholesale trade ensure the delivery of goods for the regional organizations.

Choosing a location of wholesale and logistics centers is determined by their proximity to major road and rail routes, on the main directions of goods flow and freight traffic, following on the territory of the republic. They are located in Almaty, Astana, Shymkent, Karaganda, Aktobe, Ust-Kamenogorsk and Aktau.

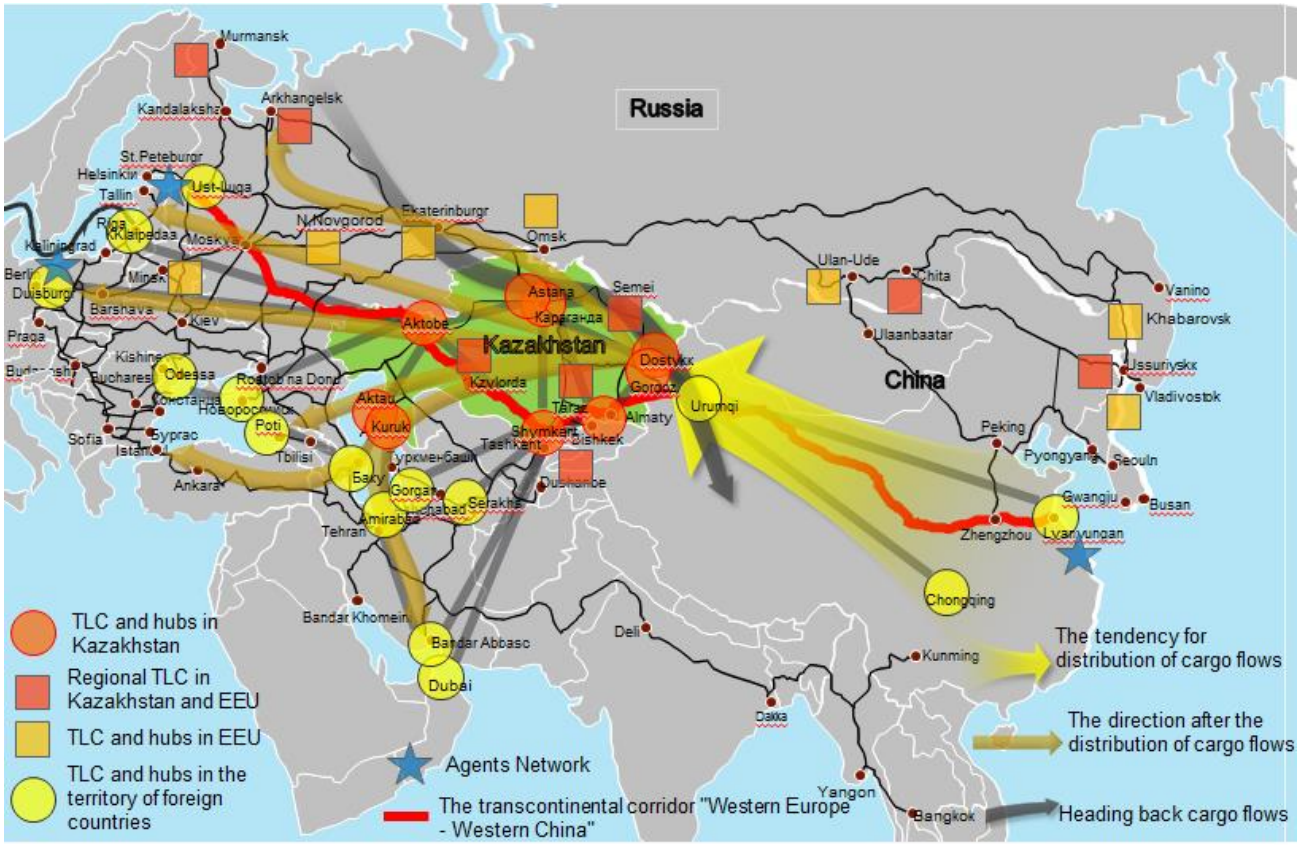

Figure 1- Strategic positioning of Kazakhstan as a transport and logistics hub in Eurasia

We conducted a study to determine the security of storage facilities for major cities of Kazakhstan.

In early 2013, the city's needs in warehouses amounted to 3.92 million square meters, according to our forecasts in 2020 will be 4.3 million square meters in 2025 - 4.6 million square meters, in 2030 year - 4.58 million square meters. The largest increase is expected in Astana and Almaty (Syzdykbaeva and Raimbekov, 2012).

(3) Development of logistics infrastructure on the basis of customs warehouses, in particular, on the existing freight terminals of JSC "Kedentransservice" on the territory of Kazakhstan

Formation and creation of the LC on the basis of customs warehouses of temporary storage of JSC "Kedentransservice" will enable the company to improve coordination and increase the level of service as a forwarder, customs agent and the owner of a temporary storage warehouse and bonded warehouse, offer a range of services for the effective maintenance of turnover (exports, imports) and transit traffic. Range of services should include transactions carried out as by JSC "Kedentransservice" directly and as well by enterprise partners, including abroad.

Currently the company has 14 branches, stations Dostyk and Aktogai. In the branches of the company are 17 rail terminals equipped with special machinery and equipment, access roads and warehouses, open specialized areas.

Participation of JSC "Kedentransservice" in TLS is due to the following factors: the company's specialists are in all regions and customs clearance points in Kazakhstan, JSC "Kedentransservice" uses 16 warehouses of temporary storage.

It is necessary to create a network of LC-based company. Work is needed to establish. Its main aim is to create a workable system of multilevel TLC to provide a full range of services in the field of customs, freight forwarding, and warehousing and logistics information, using the principles of «just in time and door to door".

The departmental TLC system includes the main departmental LC-based central office of JSC "Kedentransservice"; territorial TLC.

(4) Creation and development of trade and logistics centers in foreign countries

Considering that Kazakhstan is among the six world grain exporters, the TLC creation with Kazakh participation in grain terminals is fully justified. Combining all internal and port TLC in a single system will be a key tool for the TLS development of international level.

For example, in 2014 jointly by Kazakhstan, Russia and Belarus was created a combined transport and logistics company that will make it possible to reduce the time of transportation in the East-West direction.

Chinese presence in centers of Urumqi, Chongqing and Lianyungang gives an opportunity to influence the formation of the cargo base and conduct a direct dialogue with shippers, promoting the benefits of overland routes through Kazakhstan.

A key project in this direction is the construction of its own terminal infrastructure in the Lianyungang port to consolidate cargo flows in the direction to / from Southeast Asia, that is one of the most promising directions of trade development in Kazakhstan.

Moreover, given the high potential of agricultural exports, primarily grain and meat, will study the issue of creation (purchase) trade and logistics complexes in Russia, which, for example, allow increasing the meat exports to foreign markets to 180 thousand tons in 2020 and promoting meat products of domestic producers in foreign markets.

(5) Development of logistics infrastructure in the enterprise

It includes, first, management of storage and packaging farms, transport and handling equipment; secondly, development of management information systems of material and financial flows for optimizing inventory, etc. This problem is internal problem of an enterprise. Currently in the world there is a tendency of many transport and logistics functions transmission to outsourcing of logistics enterprises, which reduces logistics costs. Domestic companies should follow the same trend.

Also, in our opinion, adoption of the law on the TLC activities in Kazakhstan will determine the degree of state involvement in logistics projects; develop the structure of the TLC, the mechanisms for inclusion of certain logistics companies in

the TLC, the order of orders distribution among the participants of the TLC, formation of the supreme management body of the TLC, etc. The law should reflect the specific features of a project designation to TLC, the instruments of state participation in the project.

In developing the legislative framework should take as a basis the Law of the Republic of Kazakhstan dated July 21, 2011 № 469-IV «On special economic zones in the Republic of Kazakhstan" (SEZ).

We believe it is necessary to create transport and logistics special economic zones. SEZ participants (residents) have additional business opportunities in the form of ready-use transport and logistics infrastructure, tax incentives, preferential customs regimes and general business support by authorities.

For the regions of Kazakhstan most appropriate type of the TLC is its creation with a combination with terminals and warehouses to provide logistics services for the collection, storage and distribution of goods of different nomenclature.

Creating this type of TLC is especially true for all regions of the country, since in this case does not require large capital investments, development of a large area and will not have the need to build new transport hubs and communications.

5.Discussion

Based on the analysis of problems of logistics infrastructure development was substantiated the necessity of multi-level network transport and logistics infrastructure creation in Kazakhstan (terminals, logistics centres and warehouses), united in RTLS and clusters on the basis of a unified system of organizational, economic, information and legal maintenance of freight and goods movement management system, prerequisites for effective business development in the region, industry and country as a whole.

Investment boom of logistics infrastructure building, which is now observed in Kazakhstan, judging by the number of commissioned LC and still on-going projects, as well as the reluctance of developers to establish an integrated logistics service, may result in the near future series of bankruptcies of logistics providers, whose LC were built without pre-feasibility economic justification. Therefore, the construction of logistics infrastructure must be approached reasonably, carefully analysing potential traffic flows. LC construction should be focused on the processing of transit traffic, as well as export and import flows.

Now for Kazakhstan are required qualitative LC with a complete cycle of logistics services that allow exporters and importers in the transmission of logistics on outsourcing to minimize logistics costs in the final price of goods and qualitative transit cargo processing by logistics centres allow to increase revenues of Kazakhstan from the transit and increase the transit attractiveness of its territory. Also it is necessary to enter the certification activity of LC and create registry of logistics infrastructure that will clearly separate objects of logistics infrastructure by category

(storage, warehouse, terminal, logistics center, transport and logistics center, etc.) and bring level of domestic infrastructure to European standards, to eliminate inconsistency of various objects to national standards.

Proposed conceptual approach to the logistics infrastructure development as a multilevel regional logistics system of Kazakhstan takes into account the specifics of the regional economic development.

The main directions of the concept: 1) development and creation of the public TLC both within the country and in the major border transportation hubs; 2) creation of logistics centres for servicing of internal trade, i.e. creation of wholesale distribution logistics centres; 3) development of logistics infrastructure on the basis of customs warehouses, in particular, on the existing freight terminals of JSC "Kedentransservice" on the territory of Kazakhstan; 4) creation and development of trade and logistics centres in foreign countries; 5) reconstruction and expansion of logistics infrastructure on enterprises of various industries, primarily industrial and agro-industrial complex.

Conclusion

Modern Kazakhstan logistics system is in the process of becoming.

The level of development of transport and logistics complex in the region as a whole is assessed as insufficient. For the effective functioning of the TLS is necessary to create the infrastructure foundation of modern transport and logistics system in Kazakhstan; TLC network construction.

Results of the study showed that only geographical location is not enough for the country's integration into the global LS. In order to transit cargo flows shifted to the transportation system of Kazakhstan firstly is necessary to significantly raise the overall level of development of the domestic TLS and its infrastructure, modernize and significantly expand bandwidth capabilities of highways in Kazakhstan due to the development of the TLC, ensure the transparency of transport tariffs and the mechanism of their control and regulation.

At the same time, it should pay attention not on indicators of transport infrastructure’s physical elements increase, as is often asserted in justification of the decision to invest in transport infrastructure, and primarily on the improvement and efficiency of existing networks, improving the management of transport infrastructure, as well as motivate regional authorities to increase the intensity of their use.

Depending on the characteristics and volumes of freight traffic, the degree of influence on the economy of the country and the region, other factors in the regions of Kazakhstan is necessary to create a terminal and logistics complexes for various purposes in the territory and regions with a large export and transit potential.

Basing on the analysis of problems of logistics infrastructure development was justified necessity of creating a multi-level network of transport and logistics infrastructure in Kazakhstan.

Construction of the LC should focus on the processing of transit cargo, as well as export-import freight traffic.

Formation of transport infrastructure network is designed to ensure favorable conditions for high-regional development, stimulate economic growth.

Thus it offers the conceptual approach to the logistics infrastructure development as a multi-level regional logistics system in Kazakhstan, taking into account the specifics of the regions' economic development.

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2.2. RE-ENGINEERING FOR INNOVATIVE POTENTIAL DEVELOPMENT[7]

World Global Competitiveness Report for 2015-2016 showed the need to build an innovative model of the corporate sector in Ukraine. In Ukraine 2015-2016 global competitiveness index ranks 79 place of key macroeconomic indicators: GDP - 90,5 US $ billion GDP per capita - 2125,43 US $, GDP (PPP) per capita - 7970,75 US $, the share of GDP (PPP) of the world total - 0.30% [1]. The main indicators of competitiveness of the business sector are given in Table 1.1.

[7] Authors: Komelina O.V.

Table 1. Effectiveness of Ukrainian economic system in 2015-2016 [1]

The component index of global competitiveness	Rating	Indi-cator	The component index of global competitiveness	Rating	Indi-cator
Goods market efficiency					
1.1.Intensity of local competition	99	4,7	1.9. Prevalence of non-tariff barriers	116	3,9
1.2. Extent of market dominance	98	3,4	1.10. Trade tariffs, % duty	43	2,9
1.3. Effectiveness of anti-monopoly policy	136	2,7	1.11. Prevalence of foreign ownership	126	3,3
1.4. Effect of taxation on incentives to invest	129	2,7	1.12. Business impact of rules on FDI	122	3,6
1.5. Total tax rate, % profits	118	52,9	1.13. Burden of customs procedures	113	3,3
1.6. No. procedures to start a business	57	6,0	1.14. Imports as a percentage of GDP	59	50,6
1.7. No. days to start a business	101	21	1.15. Degree of customer orientation	72	4,5
1.8. Agricultural policy costs	90	3,6	1.16. Buyer sophistication	68	3,4
Labor market efficiency					
2.1. Cooperation in labor-employer relations	87	4,2	2.6. Pay and productivity	17	4,7
2.2. Flexibility of wage determination	71	5,0	2.7. Reliance on professional management .	103	3,7
2.3. Hiring and firing practices	47	4,1	2.8. Country capacity to retain talent	114	2,7
2.4. Redundancy costs, weeks of salary	54	13	2.9.Country capacity to attract talent	97	2,8
2.5. Effect of taxation on incentives to work	121	3,0	2.10. Women in labor force, ratio to men	54	0,9

The analysis of these indicators shows the need for the corporate sector of the economy of new management methods based on the methodology of business process reengineering. This conclusion we confirmed by the following indicators: internal competition (ranking - 122; the intensity of local competition - rating of 99; the dominance of certain business groups in the market - 99; the quality conditions of supply - rating of 68; the degree of customer orientation - rating of 72; consumer demand - ranking 68) [1-2].

In 2016 Ukraine has significantly improved its position in the ranking of countries on the Global Innovation Index and took 56th place. In the group of countries with below average income Ukraine took second place after Moldova. Among European countries, Ukraine on the 34th place of 39, ahead of Macedonia (58), Serbia (65), Belarus (79), Bosnia and Herzegovina (87) and Albania (92).

Table 2. Country's Innovative potential formation and its factors of improvements of Ukrainian economic system in 2014-2017 [1-2]

Competitiveness indexes by innovative factors	2014 – 2015, 144 countries	2015 – 2016, 140 countries	2016 – 2017, 138 countries
Business sophistication	99	91	98
Local supplier quantity	80	61	62
Local supplier quality	83	80	79
State of cluster development	128	124	125
Value chain breadth	79	70	97
Control of international distribution	82	86	91
Production process sophistication	95	68	71
Extent of marketing	79	81	80
Innovation	81	54	52
Capacity for innovation	82	52	49
Quality of scientific research institutions	67	43	50
Company spending on R&D	66	54	68
University-industry collaboration in R&D	74	74	57
Gov't procurement of advanced tech products	123	98	82
Availability of scientists and engineers	48	29	29

Analysis of the business sector functioning impact in Ukraine as a whole and structuring of companies by their size allows formulating some basic conclusions (Tables 3 – 4) [3]:

First, large and medium-sized enterprises accumulated considerable resource potential of the economy, but the impact of the functioning of enterprises remains low in general;

Second, the low level of innovativeness of the economy (in 2015 the industry recorded 15.2% of active innovation enterprises, the share of sales of innovative products in industrial output was only 1.5%);

Third, the proportion of completed scientific and technical work in the country's GDP reached only 0.64%;

Fourth, value added features regarding economic activity shows the differentiation of the role of large, medium and small business sector in the market's formation and describes the impact of enterprises functioning.

Table 3. The effectiveness of business entities functioning in Ukraine in 2010, 2015 (by the size) [3]

Years	Total	Enterprises		
		Large	Medium	Small
The number of businesses units				
2010	2183928	586	20983	357241
2015	1974318	423	15203	327814
Number of businesses per 10 thousand people population, units				

2010	477	0	5	78
2015	461	0	4	77
Number of workers, thsd.				
2010	10772,7	2400,3	3393,3	2164,6
2015	8180,0	1708,6	2604,7	1576,4
Number of employees, thsd.				
2010	8845,8	2400,3	3392,4	2043,7
2015	6437,6	1708,6	2603,2	1466,3
Sales of goods and services, mln. current prices				
2010	3596646,4	1401596,8	1396364,3	568267,1
2015	5556540,4	2053189,5	2168764,8	937112,8

Table 4. Value added production costs for enterprises by economic activity in 2015 [3]

Economic activity	Total, bln. UAH	Large enterprises		Medium enterprises		Small enterprises	
		bln. UAH.	% of total value added	bln. UAH.	% of total value added	bln. UAH.	% of total value added
Total	**2105,2**	**907,2**	**43,1**	**868,0**	**41,2**	**330,0**	**15,7**
including							
Agriculture, forestry, fisheries	21,1	37,0	17,6	108,1	51,2	65,9	31,2
fisheries	772,9	469,2	60,7	263,2	34,1	40,5	5,2
construction	57,6	11,7	20,4	23,7	41,2	22,1	38,4
wholesale and retail trade	47,9	182,8	38,2	210,0	43,9	86,0	17,9
transportation, warehousing	182,2	94,9	52,1	68,6	37,6	18,7	10,3
Information and Telecommunications	81,6	39,0	47,8	30,5	37,4	12,1	14,8
professional, scientific and technical activities	108,1	61,6	57,0	28,0	25,9	18,5	17,1
education	1,3	–	–	0,7	52,9	0,6	47,1
health care and social assistance	6,9	–	–	5,1	74,7	1,7	25,3
art, sport, entertainment, and recreation	0,8	4,7	55,2	2,9	33,8	1,0	11,0
providing other services	1,8	–	–	1,0	54,9	0,8	45,1

Among the limitation of small businesses growth is the lack of an established functional information system:

lack of information transparency about significant market players,

innovation, organizational and legal conditions,

state support for innovation.

All this leads to a reduction in investment activity and a corresponding investment decrease in innovation. To solve this problem, we must speed up the formation of a single integrated information space that would contain information about a recent innovation and research that encourages conduct search and applied research.

The innovative activity of small enterprises is limited by an adverse business climate that caused excessive fiscal pressure and the inertial role of the state in protecting intellectual property and tiny support business innovation sphere. In the increasingly competitive relations in the area remain extremely high transaction costs and administrative barriers that significantly hamper innovation in the enterprises [4].

For example in the construction business 49% respondents - small businesses not see any positive changes and continue to complain about the slow implementation of reforms, corruption, tax and fiscal adjustment, and pressure from the relevant authorities. Almost equally interference introduces innovative technologies such factors as the low qualified staff, a poor division of labor, inability managers to assess the need for new technologies, low organizational culture and is usually not a favourable psychological climate in the company.

Another factor limiting the promotion of domestic products to new markets is due to the need to harmonize quality standards and transition to euro standards, making it difficult to adapt to new business requirements. Also, business risk of small enterprises (such as construction) is much higher than in other sectors of the economy that affect the value of output prices for construction products and high profit margins. However, construction is different from other industries because of a significant period of production and costly to manufacture final products.

One of the problems for the introduction of innovative technologies in Ukrainian enterprises is deepening economic crisis caused by armed strife. This, in turn, leads to long-term instability and disrupt the flow of investments in the Ukrainian economy. As a result investment climate in Ukraine is unsatisfactory. According to the State Statistics Service of Ukraine in 2015 the outflow of foreign direct investment amounted to more than 12 bln. usd. In 2016 further negative trend observed outflow of foreign investment. Also in the last two years, many foreign companies rolled out their investment projects of Ukraine. Overcoming this situation requires new approaches for economic management and restructuring the economy of Ukraine as a whole.

We believe that the corporate sector formed by forming an innovative model of the corporate sector requires taking into account the world experience for effective management. It should consider the following features of formation of the country's economy:

1) a significant internal market of the country and the low level of competition among producers;

2) a high level of monopolization;

3) low-reliability reporting and information disclosure (financial auditing and reporting standards);

4) not effective corporate governance.

In forming of future business strategies corporate sector Ukraine should consider the following features of formation of innovative potential:

1) corporation is the main entity that determines the dynamics and trajectory of the economy; it has to operate in a socially responsible manner that influences the social standards of the population;

2) business strategies of enterprises must consider the benefits of global innovation cooperation, but to focus on their own innovation needs;

3) to develop the innovation potential of interregional cooperation;

4) to create conditions for the formation of its innovative (creative, intellectual) potential based on a quality use of available innovative resources and maximizing benefits.

The requirements and conditions that we formed is the basis for the launch of new innovative investment mechanisms and updates competitiveness management at corporations and countries levels.

One of the concepts of effective business development and management improvement is re-engineering of business processes (RBP). This has a direct connection to the system Total Quality. Term «re-engineering» suggested by M. Hammer (1990). In the 2006 year 1993 M. Hammer and J. Champy in book «Reengineering The Corporation» suggested this interpretation of the concept: «... the fundamental rethinking and radical redesign of business processes to achieve dramatic improvements in critical contemporary modern measures of performance, such as cost, quality, service, and speed» [5]. In the 2006 year Thomas H. Davenport, Leibold, Voelpel S. in their book «Strategic management in the innovation economy. Strategy approaches and tools for dynamic innovation capabilities» [6]*:* «encompasses the envisioning of new work strategies, the actual process design activity, and the implementation of the change in all its complex technological, human, and organizational dimensions».

We believe that re-engineering of business processes in the modern economy is an important corporation's innovative breakthrough by forming their innovation potential. In our view, the essence of re-engineering is the following:

implies a radical rethinking and redesign of business processes;

includes a set of methods and tools for improving the basic performance of the company;

uses modelling, analysis and redesign existing business processes;

based on the use of modern information technology to achieve new business targets;

intended to increase information security of a company (information security).

Commonly known in modern management there are three key characteristics of business process re-engineering:

1) a significant improvement - a qualitative transition to a new level of business performance, the implementation of breakthrough (criteria result - a startling breakthrough in the effective functioning;

2) a radical transformation (complete rejection of what it was before);

3) business process - a group of interdependent tasks that together create value for the consumer, means creating value for customers.

In our view, RBP is built on a system of fundamental changes in the organization and shall take into account the following principles:

integration of activities (by type);

personalization of responsibility (strengthening horizontal management systems as opposed to vertical);

the consistency of processes and activities for the purpose;

functional appropriateness;

multivariate management decision, where the key criterion is to maximize profits and value to consumers);

reliability and optimization of information and analytical support, focus on the assessment of the effectiveness of key business processes;

optimizing control of business processes (criteria value for the consumer, value added);

minimizing the negotiation stages on the project (saving time);

focus on customer contacts with the responsible manager (design, innovation, innovative);

optimization (centralization / decentralization) of operations.

We believe that the last two principles RBP are crucial for Ukrainian companies since they are key in shaping innovative capacity of enterprises, determine needs adequate information, its detail or aggregation mechanism to access its divisions (centralization / decentralization of access to information) and administration of informatization processes.

The following set of RBP principles may be complemented, clarified, vary according to the purpose of the business strategy.

The study World practice of the RBP gave us a possibility to discover the three main reasons for its use:

1) maintaining competitiveness by focusing on the needs of its client (consumer value);

2) the growth and differentiation of risks of the company, and their quantitative and qualitative change, which requires an adequate emergency response company;

3) increasing the mobility of enterprises in conditions of constant changes of internal and external environment, exacerbated by changes in the requirements of customers.

Sources of added value and simultaneously minimize losses during the company RBP are:

a significant increase in the degree of customer satisfaction, including work with the customer in a continuous mode (24 x 7 x 365 Support), orientation to its current and future needs;

drastic reduction in the length of the production cycle, drastically reducing the number of processes and costs, a sharp decrease in the time required to perform functions;

significant improvement in process quality control;

enhancing the role of the decisions and initiatives of each employee, the organization of group work;

a sharp decline in the number of employees;

accelerated introduction of new technologies;

ensuring the adaptation of the enterprise to function in the information society and the "knowledge society."

The main criteria for the allocation of business process re-engineering scientists include the following:

1) by the purpose of (crisis, adaptive) development;

2) by the object implementation (receiving orders, supply resources, process manufacturing, business and administration, financial support, sales);

3) by scale redesign (single improvement, scrappy documentation , total simulation, comprehensive redesign;

4) by focus on the activity (production process re-engineering, management, economic processes).

Thus, assurance of re-engineering quality and its proper implementation requires scientific study content, stages, and objectives of the implementation process of re-engineering the company.

RBP methodology is clear and took a considerable period of testing, a practical implementation of many world-renowned companies and corporations. In modern conditions, an important task is to build a methodological approach to the introduction of strategic RBP based on logistics principles, based on the innovative development of the enterprise.

The basis of selection RBP trends within the innovative development strategy is a detailed classification of business processes, taking into account several criteria:

1. The main and assistive business processes.

1.1. Key business processes and increase sources of innovation potential.

- Cost (direct impact on the formation of value added products (services);

- Value (impact on increasing customer value product (service) to customers and on this basis the formation of its value added);

- Quality (ensure compliance with product (service) to existing standards - international, national, regional, intracompany);

1.2. Supporting business processes that contribute to the optimizing internal business processes and ensure the internal stability of development:

- Provision of necessary internal products, internal services business lines;

- The operation of infrastructure.

1.3. Through business process (or cross-functional):

- Client orientation;
- Product orientation.

1.4. General (for the entire company) and functional business processes (in units).

1.5. Developmental that allows creating a chain of values in the primary and secondary processes and ensuring efficiency of the company.

3. Strategically important business processes for the development of the company innovative potential, relating to types of innovation:

- Technological;
- Products;
- Organizational;
- Marketing.

4. A business process that ensures the implementation of long-term goals of the company and focused on making a profit in the long run:

- by the basis of efficiency: income; lower costs; streamline the interaction between departments and between functional overcoming barriers to business processes implementation.
- by the type of impact on enterprise development: basic business processes, strategic (general business processes), aimed at developing and implementing the company's strategy;
- by the content: a multivariate; a priority business processes; income; lower costs; streamline the interaction between departments and between functional overcoming barriers to implementation of business processes.

5. The management processes that aim to control all previous groups of business processes.

II. Each of these types of business processes associated with logistics flows (main and other subsidiaries), the main ones being flow "production" and "supply." The effectiveness of the company as a whole and build quality flow management (business process) describes ensure delivery of consumer products the necessary quality and quantity in the right amount at the right time.

For example, analysis of the economic activity of enterprises in Ukraine makes it possible to offer a choice of approaches to business processes performance indicators:

- Assessment of business processes by its conclusions: a) production; b) sales; c) the supply of products; d) information support of business processes.
- Evaluation of business processes on practical grounds:

a) resources;

b) financial support;

c) Staffing;

4) organizational and functional support;

d) infrastructure provision;

- Evaluation the effectiveness of business processes (as dynamic process);
- Evaluation of business processes (the process by the growing value-added supply chain or main and other subsidiary business processes).

The obtained results create conditions for a further choice of development strategy. These indicators have regard to the financial statements and accordingly define business processes.

III. Analysis of business model enables the company to identify key business processes and assess their effectiveness and the adequacy of the management system.

The common process control [7] includes the following components: «input», «output», «resources», «client process», «process owner who performs management functions» as well as associated with these blocks the flow of products and resources and information management solutions.

The business process involves flows that separate, administrative decisions of the basic processes for the product as a result of the company's effectiveness.

This model includes horizontal and vertical flows «penetrate» its organizational structure, and helps identify areas of responsibility structural (organizational) departments that manage this process. This model RBP and management of business processes is strategic and involves determining goals, the head of business processes, resources, inputs are transformed into outputs, and information flows.

IV. Business process modeling. Each of the selected of business processes has logistical sign describes a set of logistics flows in the enterprise. Analytical evaluation of business processes creates the basis for determining the defined customer value chain effectiveness and the company's added value.

The difference of our proposed methodological approach to evaluating business processes to develop innovative potential of the company is the following:

proposed a comprehensive evaluation system enable business processes to measure the performance of the company and justify strategic guidelines for the formation enterprise innovative potential;

selection criteria and classification of business processes vary depending on the specific strategy and tactics of business;

every business process must be assessed under the relevant system of benchmarks and indicators;

evaluation of the results obtained business processes are the basis for selection of innovation of the company and justification measures to reengineering;

business process management of the enterprise is a complex process and in today's conditions is a strategic logistics management features on the following criteria; "Value added" and "creating customer value";

methodological approaches to evaluate its acting management tool that takes into account the features of a particular company, its internal business processes and positioning on markets.

We consider that building innovative capacity based on business process reengineering requires the integration of administrative actions by the vertical and horizontal components to provide the desired result.

RBP management model should include organizational process and economic also financial components.

They have their forms, techniques, methods, tools and levers of regulation impact on business processes of the company, taking into account the desired parameters development trends of interaction with contractors, logistic constraints in the implementation of the logistic output stream (consumers).

In forming models of business process-based logistics approach should pay attention to the appropriateness development of appropriate tools of governance. It should take into account the specific company features, its internal business processes, and position on markets.

Scientists determine such problem of organizations management development that can apply logistic approach RBP them:

1) lack of adequate tools for the logistics business process management in the enterprise. Using limited means and methods of administrative impact on business processes (from procurement to sales);

2) low efficiency of administrative services (particularly financial services, accounting, HR services, corporate centers of large holdings, etc.);

3) the effectiveness of service delivery, its organizational structure, and compliance with key business processes;

4) absence of reasonable criteria for evaluation of management staff.

Thus this is all about forming a creative approach to the methodology for assessing the efficiency of business processes as the basis for determining the types of reengineering.

The combination of business process components (organizational, informational, analytical and methodological) of reengineering provides a basis to substantiate the content of the innovative transformation of the company. Among the major ones should be highlighted:

strategies development and implementation of logistics business process management (where the key factor is the consumer needs and creating added value);

new administrative procedures "business rules" review, improvement or development of all types to reduce costs and reduce the time of decision making;

organizational management structure review, improvement or development of new one (usually simplifying vertical and horizontal structure development process management, cross-functional overcoming the contradictions between the various departments, change management processes);

changing personnel policy content (estimated diversity and a variety of workers, increased autonomy and decision-making responsibility for their implementation, changing functional responsibilities, requirements for training or professional

education, motivation, and remuneration associated with the impact of an employee, the new HR strategy);

creation of a reliable information-analytical system of RBP and implementation of new information technology.

Business processes effectiveness evaluation provides the opportunity to determine the magnitude of re-engineering and its type (one-time improvement, documentation scrappy, total simulation, integrated ordering activity).

Business process reengineering (BPR) began as a private sector technique to help organizations fundamentally rethink how they do their work in order to dramatically improve customer service, cut operational costs, and become world-class competitors. A key stimulus for reengineering has been the continuing development and deployment of sophisticated information systems and networks. Leading organizations are becoming bolder in using this technology to support innovative business processes, rather than refining current ways of doing work [8].

In forming the models of business process-based logistics approach should note advisability of governance proper tools development, which should take into account the specific features of the company, its internal business processes, and position on markets.

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2.3. THE ANALYSIS OF USE OF THE INNOVATIVE COMPONENT IN PRACTICE OF THE INTRAPRENEURSHIP[8]

The most essential characteristic of an intra-corporate entrepreneurship is manifested in the creation of new activities in the existing firm by updating product/service portfolio of this firm, development of activities in the new markets.

The intra-corporate entrepreneurship is an important factor for the young developing firms which compete with the large settled companies as it helps to achieve the necessary growth rates, increases the quality and speed of decision making which in turn can lead to the victory in the competitive struggle.

In addition to a special organization culture in the companies where there is an intra-corporate entrepreneurship, it also helps to develop the following components:

— innovative activity;

— innovations as personnel capability;

— innovations as the process which is responsible for implementation of the ideas;

The results of using this kind of conducting activity, like intra-corporate business, can be considered as set of several measurements:

1. Innovation — this measurement defines innovations in technologies which determine changes in products or services.
2. Self-update — this characteristic is responsible for systematic updating of the purposes of firm, its strategy and the key ideas. The intra-corporate entrepreneurship leads to redefinition of the concept of business, reorganization and changes in structure.
3. Activity. It is responsible for the market leadership and leadership within the framework of efficiency of intra organizational management which is reached by implementation of innovations and risk-taking.
4. New organizational values: accurate communications, partnership, risk-taking and market orientation.
5. Human qualities of entrepreneurs: universal workers, effective interaction with people and motivation [1].

Being relatively young field of research, intra-corporate business represents an attractive research field, because the condition of scientific knowledge in this subject domain is poorly structured today, the synthetic nature of a phenomenon causes coexistence of a large number of approaches to his definition and studying.

The conducted researches in the field of an intra-corporate entrepreneurship revealed the need of search of new alternative approaches to its conceptualization and modeling. Additional approaches that already exist could help in further research of elements of structure of an entrepreneurship.

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The analysis of development of an entrepreneurship in Kazakhstan shows that it is performed in two main ways:

- entrepreneur acts as a business entity that creates new organizational operational structures;
- operating enterprise acts as a business entity;

The first way is based on private initiative and private property, it is most appropriate to the classical understanding of the business. The second way is that the current enterprise creates or participates in the creation of production and commercial business organizations.

Until now it is rare to find an actively developing Kazakh company that fully complies with the requirements and the level of in-house business, although elements of it and the practice of increasingly common.

The prototype for the organization of an intrapreneurship at the Kazakhstan enterprises can be considered as the organization of internal self-financing where each division has an opportunity to work as an independent accounting entity.

It should be noted that the concept of "intrapreneurship" does not exist in Kazakhstan legislation, however, any objective reasons preventing the emergence of similar relationships, such as legal restrictions and prohibitions are absent.

However the relations of an intra-corporate entrepreneurship for the present didn't gain sufficient distribution in Kazakhstan. The main problems interfering development of an intra-corporate entrepreneurship in Kazakhstan are:

-Limitation of the enterprise;

-Financial difficulties and difficulties in securing resources;

-The limited freedom of proponent and implementer of business ideas;

-Selfish policy of the enterprise - the founder and managers of business structures.

In this connection, there can be problems with the legal and organizational design of intrapreneurship relations. The legal basis for such a relationship can be an order or a command of the director that determine the conditions of intrapreneurship; position (rules) on the conditions of intrapreneurship approved by the head; various agreements, conventions between management and employees, intrapreneurs [2].

In the Kazakhstan conditions forming of the following divisions of an intra-corporate entrepreneurship (table 1) is possible.

The intrapreneurship in the Kazakhstan conditions can be profitable in cases when the firm switches from production of the standardized consumer goods to the range of differentiated commodity for individual consumers. The disadvantage of application of the concept of an intrapreneurship by the Kazakhstan companies is that they do not adequately perform decentralization, or carry out it at a low level while implementation of an intrapreneurship to the organization should be a radical process. In order to achieve the necessary effect of synergy strategic management, structure and the corresponding corporate culture shall replace centralized regulation strictly.

Table 1. Divisions of intrapreneurship

Types of the enterprises	Characteristic of activity
engineering firms	connecting link between research and development, on the one hand with innovations and on the another hand with production
implementation firms	specializes in the implementation of the unused patent holder of technology, to promote the license market inventions, bringing inventions to the industrial stage
venture firms	risk companies which are created for the purpose of testing, refining and bringing to the industrial implementation of risky innovation
franchasing firms	provision by major company to small enterprise of a sales right of its products or services under the trademark of major company

Moreover, after the implementation of intrapreneurship in Kazakhstan corporations the relations between colleagues of intrapreneur firm and executive management of corporation begin complicate that often leads to the exit of the company from the entrepreneurial corporations. It is not beneficial to either of the other parties, but, nevertheless, in order to save the power corporate executives break the relations with intrapreneur firm.

If the liberal ideal dominating in the developed countries of the West is connected with increase in efficiency as supreme value of the certain individual, then such parameters as orientation to external control, constant underestimation of management of innovations belong to traditional features of managerial consciousness of the Kazakhstan leaders. Therefore the question of a possibility of application of foreign experience of an intrapreneurship by the Kazakhstan entities is urgent [3].

Special value of use of foreign experience of an intrapreneurship for Kazakhstan is that its internal split bares those socio-cultural mechanisms of economic activity which can promote survival of firms and even to their prosperity, and in extreme conditions they find strong resource, generally human, capital with its potential of exceeding possibilities of implementation of an intrapreneur of firms of the western countries [4]. Their identifications is an important task of the revival of competitive high technology production in Kazakhstan.

At the same time, the implementation of in-house business concept of foreign firms has helped to stabilize the economic mechanism, as it has allowed corporations with the best organization of intrapreneurs' work become more advanced corporations in comparison with those who adhered to the traditional approach.

Therefore with the current conditions intrapreneurship can be the solution of a large economic problem: sufficiently productive restructuring of the company taking

into account international experience as any effective intrapreneurship is based on complete independence which is formed in firm, generally through productive use of new knowledge (a unique, characteristic exclusively for the firm know-how) of its personnel.

The first step to development of an intrapreneurship at the Kazakhstan enterprises is the understanding by their heads and specialists of essence and efficiency of entrepreneurial style of behavior. Manifestation of an initiative in creation small entrepreneurial and the intrapreneur firms in the companies is important. For this purpose it is necessary to create, first of all, the concept of the organization of an intra-corporate entrepreneurship in which the next moments would have found the solution (Table 2).

Table 2. Main aspects of the organization of intrapreneurship

Stage of the organization	Questions for the decision
Learning of experience	What experience is appropriate for the development of intrapreneurship in the company?
Management arrangements	Heads of which enterprises and productions of the company have qualities of entrepreneurs? Can they head small business structures that are created within the company?
Marketing operations	Which divisions of the company are able to cope independently with the task of improving the products according to customers' needs and independently organize marketing?
Technological development	What new scientific and technical risky ideas and invention could significantly improve the range and quality of products and improve the technology?
Personnel management	Who searches the risky ideas put forward by experts of the company? How to improve the search of such ideas?
Work organization	What requirements for successful work of entrepreneurial divisions could be created?
Information support	What information channels which are necessary for business function of in-house structures should be open?

One aspect of the application of intrapreneurship concept in the practice of the Kazakhstan enterprises is the transformation of the business model of individual companies. The business model is a combination of the key strategic choices of the company: value, technologies of the main business processes, target segments of the market, the structure of value creation and cost structure offered to consumers.

Contact intrapreneurship and business models can be considered in two aspects: structural and dynamic. The structural aspect is related to the phenomenon of

corporate ventures - the release of the individual structural units or the creation of independent businesses to implement innovative projects. The basic idea of corporate venture - the simultaneous use of the advantages of a large company (experience, expertise, financial capacity) and small businesses (entrepreneurial nature management, flexibility, high speed project implementation) [5].

The experience of developed countries shows that the share of new knowledge embodied in technologies, equipment and organization of production in the industrialized countries accounts for up to 75-80% GDP growth. In Kazakhstan this figure by the end of 2014 reached a value of 25-30%, with the greatest increase in accounts for 2010-2013.

Considering the cost of technological innovation in the industry of Kazakhstan and its regions it may be noted that in South Kazakhstan region in 2014 on technological innovation allocated 13912,6 million tenge which is equal to 8.17% of the republican index (Table 3).

According to the UN, today Kazakhstan isn't included into the list of twenty high-technology countries of the world. The top ten countries with innovative economies include Finland, the USA, Sweden, Japan, South Korea, the Netherlands, Great Britain, Canada, Australia and Singapore, China and India.

Level of innovative activity is determined by availability of the powerful knowledge base and mechanisms of implementation of the available intellectual potential.

Table 3.Costs for technological innovations in the Republic of Kazakhstan, mln tenge

	2008	2009	2010	2011	2012	2013	2014
The Republic of Kazakhstan	56016,5	71513,4	76264,9	97463,7	31034,8	219571,2	170174,3
Akmola	2011,7	2152,2	1688,8	77,6	284,7	629,5	3626,8
Aktobe	5646,3	4577,3	13992,7	8904,0	1305,6	25667,3	29374,1
Almaty	1544,0	1375,3	1222,7	9,3	1,3	36,4	1542,1
Atyrau	167,5	5221,4	208,2	73,0	-	323,8	14265,6
West Kazakhstan	251,2	354,2	2341,0	1296,2	366,1	-	46888,2
Zhambyl	1511,9	1381,4	1241,3	714,2	420,3	10447,9	8244,9
Karaganda	21244,5	20770,8	10437,3	17607,1	688,8	2204,1	6900,9
Kostanay	296,8	2232,0	5678,0	97,6	8,1	33,3	526,4
Kyzylorda	33,8	200,4	190,0	185,0	28,3	17760,0	2673,5
Mangistau	7923,0	2647,1	372,9	6749,9	1630,6	-	414,9
South Kazakhstan	2107,1	2030,0	2351,5	833,9	385,9	8504,9	13912,6
Pavlodar	309,6	1400,1	24566,2	20103,4	9489,0	10808,0	6995,0
North Kazakhstan	1,3	13774,7	46,9	556,4	47,3	325,4	63,7
East Kazakhstan	5880,8	5284,4	7901,2	34777,8	15344,	139824,7	30366,8

					2		
Astana city	5380,9	4867,3	189,8	2,0	1,0	9,9	1218,4
Almaty city	1706,1	3245,1	3836,6	5476,4	1033,5	2996,0	3160,4
Source: Statistics agency of the Republic of Kazakhstan							

In general, the situation on improvement of the business activity of the enterprises is affected by the number of innovatively active companies, the number of which grows in South Kazakhstan and was - 51 (more than 2 times higher than in 2010 and 3.5 times higher than the 2008 level). For comparison, the share of innovatively active enterprises in the United States is about 50%, Turkey - 33, Hungary - 47, in Estonia - 36, Russia - 29.1%. In Kazakhstan the situation is slightly improved and constituted 15.3% (Figure 1).

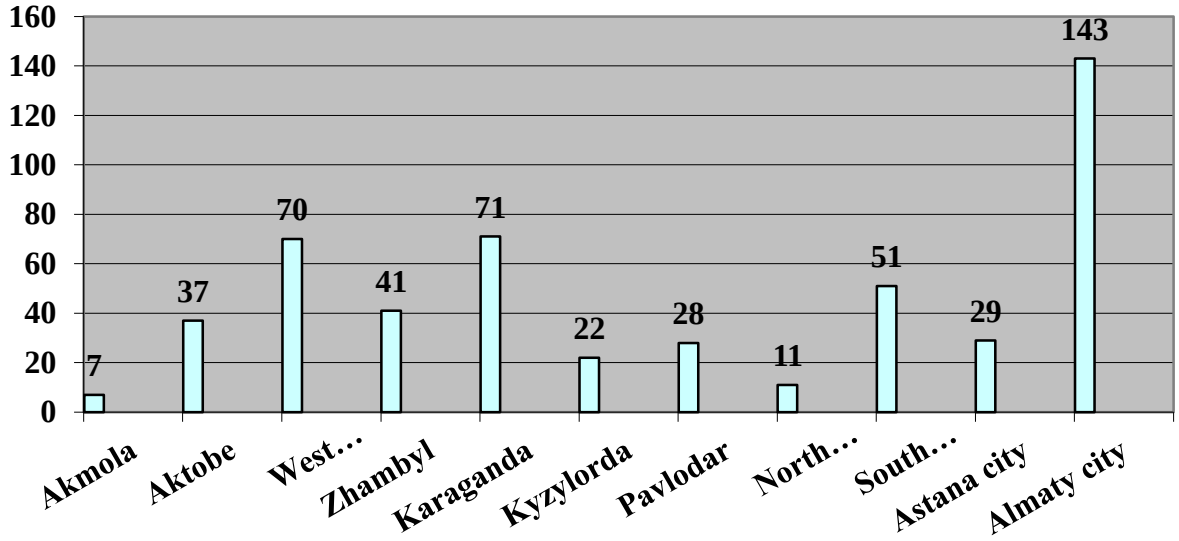

Figure 1- The number of innovatively active enterprises in the Republic of Kazakhstan

In general, low innovation activity is attributed to the lack of interest of foreign investors in the implementation of breakthrough projects in production, incentives for domestic entrepreneurs, project commercialization skills.

The world practice shows that the level of innovative activity in the industry in the region is directly connected with the role of science in economic reforms. For example, the United States allocated 2.9% of GDP for the research, Japan - 3%, Germany - 2.35%, France - 2.25%, Sweden - 4.0% [6].

The figure shows the level of innovative activity of enterprises of Kazakhstan in territorial section. In South Kazakhstan positive shifts in the field of innovations allowed to exceed significantly the national average level of innovative activity (Figure 2).

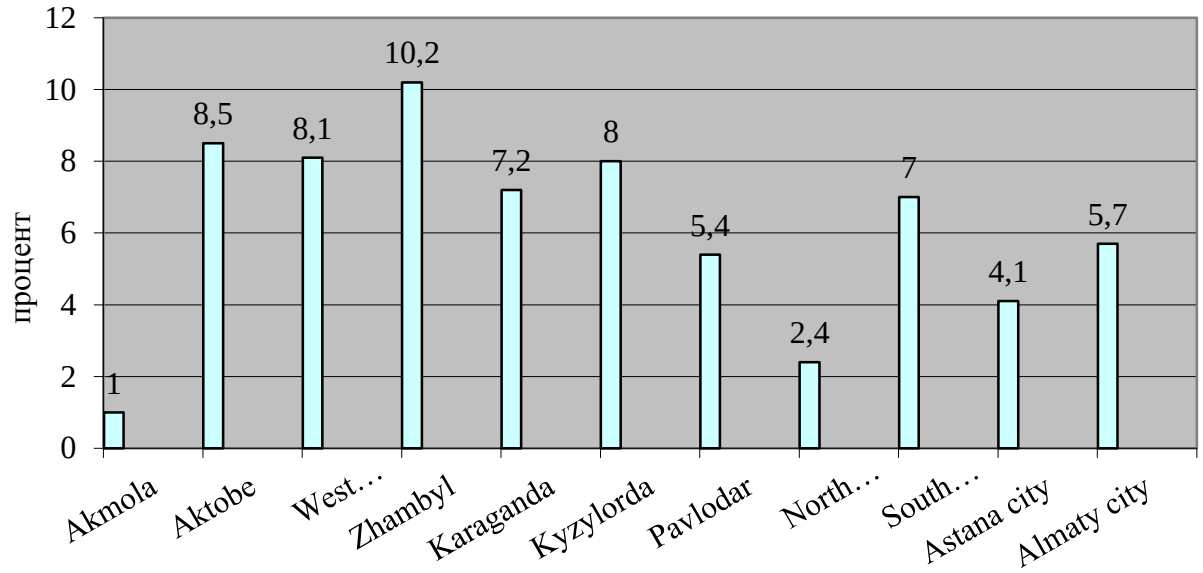

Figure 2- Level of innovative activity of enterprises

It should be noted that the European Union recommends its members to increase the investment in science to 2.5% of GDP. In Kazakhstan over the past 5 years, the volume of financing of science has increased, but constitute about 0.5-1.2% of GDP.

In structure of innovative products of industrial enterprises the greatest specific weight is occupied by the production which is again implemented or underwent to technological changes – 82,3%, production which underwent to enhancement – 6,8% and 10,9% - other innovative production.

Current expenditures on research and development did not have a clear tendency, as in the whole country, and in the South Kazakhstan region. This is evidenced by the data in Table 4.

In 2011-2014 share of South Kazakhstan in the nationwide volume of expenditures on research and development ranges from 0.9 to 1.35%.

Today in our country there are institutes dealing with problems of production of the science-intensive products, but they are insufficient for implementation of the ideas on a large scale. For achievement of overall performance it is necessary to solve such problems as creation of the institutes dealing with issues of professional training and retraining of technical specialties with active participation of business community.

Indeed, over the years of independence, there have been dramatic shifts in the economy of the region: institutes of development were created, the economy of the resource is transformed into investment, and we are now at the stage of transition to innovation.

Since the phenomenon of intrapreneurship can occur in any department of the enterprise, it is recommended the speedy development of the mechanism of identification and implementation. The process of establishing intrapreneurship is a

chain of actions that result in the transformation of the traditional (base) enterprises in the enterprise the entrepreneurial type.

Table 4. Current domestic expenditure on research and development, mln tenge.

	2011	*share in RK, %*	2012	*share in RK, %*	2013	*share in RK, %*	2014	*share in RK, %*
The Republic of Kazakhstan	34761,6		38988,7		33466,8		43351,6	
Akmola	464,7	1,3	482,6	1,2	574,5	1,72	471,0	1,09
Aktobe	498,1	1,4	492,4	1,3	627,3	1,87	628,1	1,45
Almaty	486,4	1,4	537,0	1,4	705,1	2,11	1007,8	2,32
Atyrau	2 053,2	5,9	1883,1	4,8	2 199,3	6,57	3010,9	6,94
West Kazakhstan	4273,4	12,3	5589,0	14,3	5099,2	15,24	4175,9	9,63
Zhambyl	1123,3	3,2	1153,8	3,0	1221,9	3,65	198,2	0,46
Karaganda	478,7	1,4	489,3	1,3	212,9	0,64	353,7	0,82
Kostanay	1190,2	3,4	1206,0	3,1	939,4	2,81	1528,4	3,53
Kyzylorda	214,2	0,6	361,0	0,9	214,7	0,64	250,6	0,58
Mangistau	59,5	0,2	80,8	0,2	80,7	0,24	79,5	0,18
South Kazakhstan	3425,5	9,9	3138,0	8,0	3064,8	9,16	5150,9	11,88
Pavlodar	258,3	0,7	303,3	0,8	198,8	0,59	385,6	0,89
North Kazakhstan	131,1	0,4	129,8	0,3	112,1	0,34	101,9	0,24
East Kazakhstan	384,9	1,1	357,9	0,9	450,7	1,35	440,5	1,01
Astana city	4768,4	13,7	4448,5	11,4	4445,6	13,28	9280,9	21,41
Almaty city	14951,7	43,0	18336,2	47,0	13319,8	39,80	16287,6	37,57

Source: Statistics agency of the Republic of Kazakhstan

During the functioning of the enterprise may be problems to be solved with the help of intrapreneurship and occur or already exist conditions for its implementation. Preconditions, i.e. the prerequisites, for the establishment of intrapreneurship, are caused by the existence of demand for business and potential resource possibilities for its implementation (financial, logistical, human resources). These assumptions can be objective in the traditional enterprise, both under the influence of the environment, and under the influence of internal conditions.

The basic needs of forming the prerequisites for the emergence of intrapreneurship are: the need to obtain funds for the survival of the enterprise; the need for the establishment of a framework for the perspective development of the enterprise; the need for additional revenue [7].

The need to obtain funds for the survival associated with a crisis of the main production, the lack of funds for the maintenance and development of the core activities. Requirements for creating a framework for the future development of the company occur at the initial stage of decay, and the development of new products, innovations in the existing production is difficult, and sometimes impossible. Requirements of receipt of an additional profit objectively are always present, even at effective work of the main production.

For the formation and development of intrapreneurship must be established a specific set of organizational and economic conditions (Figure 3), which include:

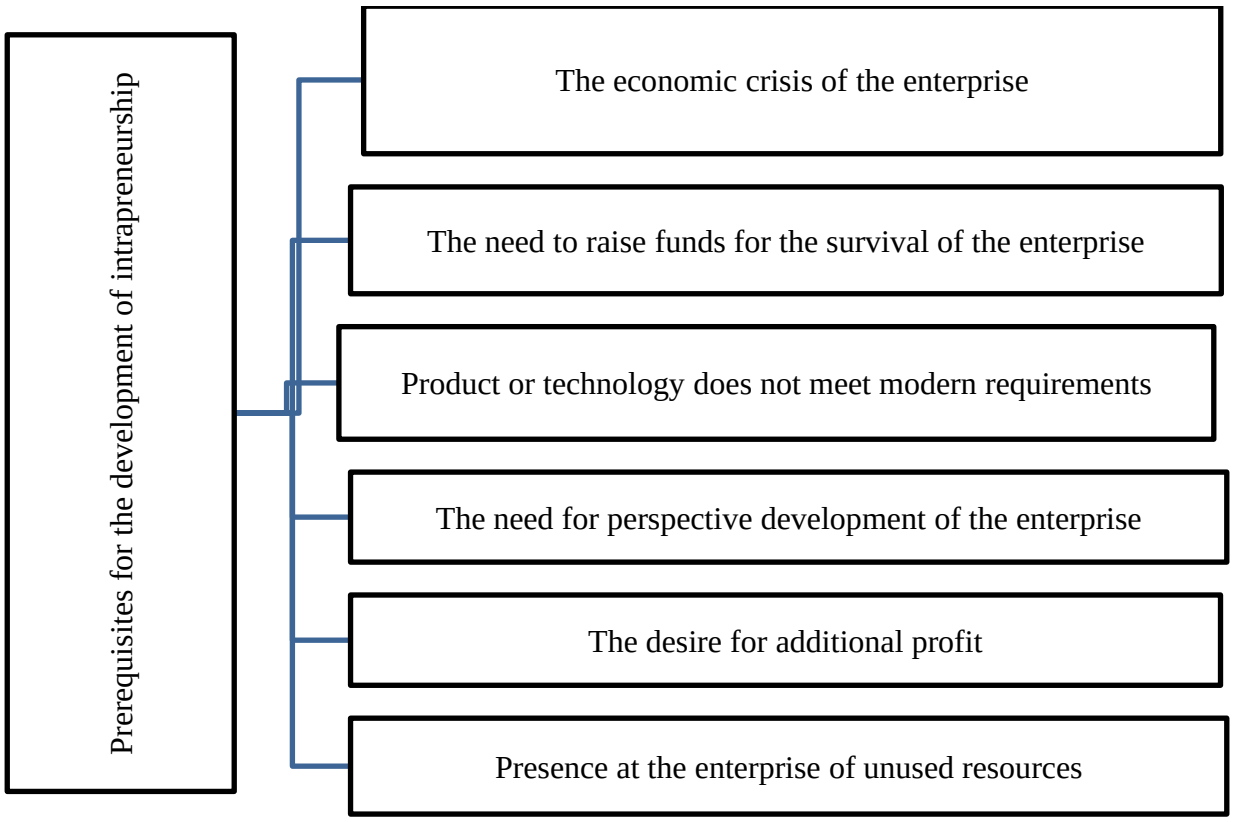

Figure 3- Prerequisites for the emergence of intrapreneurship

All the above conditions enable to say that the company has new opportunities for development, in other words certain conditions of external and internal environment are created.

At the level of senior managers still there is no understanding of the profitability for the enterprise and for society of intrapreneurship resource as it requires scrupulous tracking of the reverse material and information flows at different

organizational levels, allows you to make clear, to legalize many informal and shady connections, which is clearly not beneficial for many business leaders in Kazakhstan.

There is a tendency that the higher the level of power of Kazakhstan's managers, the more misunderstanding profitability of the introduced intrapreneurship resource.

Therefore, in case of formation of an intrapreneurship at the Kazakhstan enterprises it is necessary to be convinced, first of all, that the highest and average managerial links show interest in development of an intrapreneurship. Without involvement of these links, especially the highest, the entity will never manage to change culture in the organization and to provide conditions for development of an intrapreneurship [8].

After the top management of the company confirms its determination to test the concept during the test period, it is necessary that got acquainted with this concept at all levels of the organization. It can be done by means of seminars ,at which various aspects of an intrapreneurship are considered, strategies on transformation of an organizational culture in the spirit of an intrapreneurship.

After the decision on transformation of the company by the principle of an intrapreneurship is made and the preliminary stage of training is passed, it is necessary to pass to more profound studying of culture of an intrapreneurship.

General and specific information about various aspects of an intrapreneurship needs to be made as a property of all company, both by means of direct communication, and through the media which is available in the company. For activization of development of an intrapreneurship at the Kazakhstan enterprises creation of a system of support and stimulation of implementation of an intrapreneurship on the basis of use of resources and organizational production capabilities of the entity and the entrepreneur is offered [9].

One of the important aspects of the formation and development of intrapreneurship for local enterprises is the formation of intrapreneurship units.

In our opinion, at Kazakhstan conditions at the enterprises creation of the following intrapreneur divisions is reasonable:

—department of development of a new product or the development of new activities (innovation is of great strategic importance, and partly due to the primary production);

—new specialized economic units (innovation is of great strategic importance, but weakly associated with the main production);

—micro-departments of new risky initiatives (innovation is of uncertain strategic importance, but it is strongly associated with primary production);

—independent economic units (innovation is of uncertain strategic importance and absolutely not connected with the main production).

Since the intrapreneurship does not bring instant return, associated activities cannot get enough attention, necessary financing and adequate support. Therefore, for the successful establishment and development of intrapreneurship for local enterprises need to support and stimulate its implementation, based on the use of

resources and organizational and production capacity of the enterprise and the entrepreneur. This is particularly important, given that intrapreneurship is not the main area of activity of the organization.

In our opinion, the system of support and incentives for the introduction of intrapreneurship must include the elements listed in the table (Table 5).

№ п/п	Support elements	Incentive elements
1	Provision of entrepreneurs with the necessary financial resources	Orientation to advanced technologies
2	Development of spirit of intrapreneurship on a voluntary basis	Encouragement of introduction of the new ideas
3	Simplification of a system of registration of the intrapreneurship	Encouragement of experimenting and related try-and error-method
4	Existence of wide internal network of sponsors	Stimulation of the creative solution of problems
5	Support from the top management	Encouragement of work of specialists of different professions in one team
6	Provision of implementation of information technologies to increase the overall performance of entrepreneurs	Creation of system of remuneration and encouragement of entrepreneurs

Of paramount importance for success of process of implementation of an intrapreneurship in the organization is the provision of financial resources necessary to ensure that the new company based on intrapreneurship, could develop and compete successfully in the market.

Financial provision of risky projects of an intrapreneurship can be done by creating alternative network of sources of the financial resources operating at the different levels of the organization. It can be general corporate funds on research and development works, independent means of intrapreneur divisions, general corporate resources of special innovative funds for financing risky projects [10].

To create a climate of intrapreneuship the organization needs to focus on cutting-edge technology, strongly encouraging the implementation of new ideas. Since R & D is an essential source of fruitful ideas of new products, they should be held at high level for the industry. New ideas should be encouraged and supported, not rejected, as it often takes place in companies, in which on the first place the task of ensuring high return on the invested capital and large volumes of sales is proposed.

Concerning intrapreneur divisions it is necessary to develop system of estimates which would promote expansion of well working divisions and liquidation of badly working links. It is also necessary to be convinced that the expansion of activities of new division is not beyond common goals of an organizational structure and didn't duplicate action of already existing divisions.

For successful implementation of an intrapreneurship liquidation of inefficient entrepreneurial divisions in firm is necessary, as an expansion of activities of more effective links.

At the same time some unprofitable divisions can be kept if any other entrepreneurial divisions of the organization are subsidized through them or they create a basis for implementation in a new strategically important for the company scope of activity. As a result, the system for maintenance of the effective new entities and liquidation unprofitable should be created [11].

Thus, the proposed system of support and stimulation of intrapreneurship implementation will allow to overcome the discrepancy between cultural dimensions levels in Kazakhstan with the ideal profile of a culture favorable to the development of intrapreneurship, and will contribute to its successful establishment and development at the Russian enterprises.

The relationship between the presence of intrapreneurship and the degree of innovation, which is expressed in the frequency of development of new products and processes are quite obvious. Also, companies with the development of entrepreneurial initiatives reveal a higher level of performance. Thus, firms with well-developed entrepreneurial potential have higher profit than conventional firms. The rapid growth of companies is also noted as a characteristic inherent in companies with intrapreneurial initiatives.

The intrapreneurship leads to the improved results of organizational activities which are usually expressed in increase in profit and growth of firm. On the other hand, the intrapreneurship has a certain practical value as expressed in the processes of creating value for firm (cost reduction, improvement of processes) and the products valuable in the market for consumers. Also, firms that have failed to instill certain entrepreneurial traits react to threats more slowly, miss the market opportunities that require decision speed.

It should be noted that companies which have the potential opportunity to create conditions for the formation and development of intrapreneurship, but do not use it, bear the opportunity costs, or the cost of missed opportunities. The cost of missed opportunities includes potential damage from non-use of entrepreneurial opportunities of the enterprise and the potential damage from the inefficient use of production reserves.

As potential damage from non-use of entrepreneurial opportunities of the enterprise the average monthly profit of the enterprise of the corresponding industry can be. As potential damage from underexploitation of production reserves of the basic entity either market value of not used resources or average values of capital productivity in activities of the enterprise of the corresponding industries can be accepted.

Having analysed the main results which are brought to firm by use of an intrapreneurship, it is possible to make assumptions concerning the received benefits of the company from availability of intrapreneurship in it.

Firstly, the main purpose of the introduction of intrapreneurship is to increase the frequency of the launch of innovations. Companies allocate certain people with the authority and responsibility for developing and bringing to market a new product, service, development of new technologies or improvement of processes in the company. It gives the chance to avoid bureaucracy of bulky structures, allows to increase the speed of these processes.

Secondly, intrapreneurship should give a temporary advantage to organization in making management decisions. The entrepreneur is allocated with powers, with the responsibility for implementation of the project, resources necessary for implementation are allocated under the project. There is a centralization of decision-making in the direction of the newly formed business. The centralization of decision-making is characterized by a more rapid decision-making, reduced transaction costs, acceptance of risk by the smaller number of managers. Thus, at the company the time of reaction to signals of the external environment is reduced, and the firm can quicker realize these opportunities.

Solutions are implemented actively, the cost of finding and assessing opportunities is less, and resources are allocated quicker. Thus, the company can get the time to re-evaluate the investments that has been made, generating alternatives, which gives it some flexibility. Besides, the intrapreneurship doesn't consist in a tough framework of an organizational structure.

Thirdly, intrapreneurship is a way of optimal use of resources in comparison with situation of traditional management. Under optimal use is intended the fact that the owner achieves better results than the traditional manager, using the same amount of resources allocated to the organization.

Thus, for the company it is more profitable to use intrapreneurship as it is possible to achieve big results in case of equal resources, or equal results in case of smaller resources as the intrapreneurship combines in itself responsibility, risk and big efficiency.

Fourthly, there is a growth of a firm in direct and relative indicators. Any innovative activity, directed on creation of new products, or on improvement of the existing processes, leads to receipt of the big income, or to reduction of expenses that leads to increase in profit.

Also, intrapreneurship can be called a kind of indicator of the growth, as if newly created activity is successful and begin to develop, it will increase the company's market share, number of employees, the size of the profit. Thus, if in the company innovative activities are introduced, new products often take root, processes change, then with a high probability she will grow up in relation to a previous period, advancing growth rates of an industry.

Fifthly, intrapreneurship leads to the creation of a new organizational culture based on creativity, mutual assistance and training. This organizational culture leads to the emergence of universal workers that are able to exercise entrepreneurial traits in different contexts, conditions, generate ideas and promote their implementation.

Thus, in the conditions of transition Kazakhstan on the innovative way of development the intrapreneurship can be considered as one of the ways of increase in innovative activity of the entities.

It is clear that the further research is needed to study the phenomenon of intrapreneurship in companies. The most promising areas of research may include the following: the study of the impact of the company's strategy to intrapreneurship, which, in turn, affect the growth and profitability of the company; the impact of management practices, intrapreneurship on effectiveness of activities of the company; study of the role of leader in the level of development of entrepreneurship.

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2.4. THE FACTORS INFLUENCING TRANSPORTATION OF GOODS AND DEVELOPMENT OF LOGISTICS IN KAZAKHSTAN[9]

Abstract. In today's global environment, logistics plays a key, and, in some cases, decisive role in the industrial development of the country. In a number of countries, the government has first counted on the development of logistics as a major factor in stimulating industrial development. In Kazakhstan, this tool can also bring significant economic benefits for industrial breakthrough.

This paper examines the challenges and obstacles to the development of transport and logistics system (TLS) in the freight transport and the ways to solve them. Problems and causes that influence the direction of goods transportation (transit and export, domestic) and the strategy of TLS were determined on the basis of expert judgment.

The priority initiatives to overcome constraints to the development of TLS were identified. This means, along with the known infrastructure projects, the need for institutional changes in the governance structure of TLS.

I. Introduction

Transport logistics system is the main instrument for the implementation of economic relations between the regions of Kazakhstan, the implementation of cargo transit through Kazakhstan, as well as the main channel of Kazakhstan goods export to world markets.

Transport logistics system of the Republic of Kazakhstan (RK) serves domestic needs of the economy, it is a driver of the Single Economic Space TLS and ensures implementation of the transit potential providing a wide range of transportation and logistics services on the level of world standards.

Kazakhstan's export turnover could grow by 1.5 times - from 96 million tons to 147 million tons - in 2020, which will require additional freight service to Russia, China, South Korea, Europe, Central Asia from TLS /1/. It is also expected that the volume of trade between the neighboring countries of Kazakhstan will increase by 1.5 times and could reach 1 trillion US dollars by 2020, which creates the transit potential through Kazakhstan.

According to the State Program of Forced Industrial-Innovative Development of Kazakhstan for 2010-2014 years (SPFIID), the country's GDP is expected to grow by 50% by 2014 in comparison with 2008 and reach 203 billion US dollars. The output in manufacturing should increase by half, jumping from 57 to 86 thousand US dollars per person. The share of non-oil sector in the economy is expected to increase by 60% - from 25 to 40%. The share of innovation active enterprises should reach 10% /2/.

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In this context, a key role in achieving these goals belongs to effective transport and logistics system, which will provide not only a high and effective transport connectivity in the country, but also the necessary level of integration of Kazakhstan into the world transport and logistics network.

The relevance of a long-term transport and logistics strategy development of the Republic of Kazakhstan until 2030 is conditioned by the need for integrated approaches to the management of the RK transport complex, which implies a shift from the traditional «narrow transport» approach and use of a new modern paradigm of TLS. The solution of the issue of Strategy development requires the best global management experience of similar systems of leading countries, such as Germany, China, the USA, Canada, UAE, Singapore and many others.

II.Literature review

In many countries special attention is given to the development of transport and logistics systems, and the best international practice emphasizes the priority of improving TLS management systems and removing non-physical constraints along with the development of infrastructure assets.

Market issues of logistics and transportation-logistics services have been studied by foreign scholars [3-12], some problems of quality assessment at the company level and some countries, the study of innovative logistics services are presented in the following researches of scholars such as China: X. Liu, D.B. Grant, A.C. McKinnon, Y.Feng /13/, Zeyan Zhan /14/, Chen Yang-ping /15/ Taiwan: Chin-Shan LU, Chi-Chang LIN /16/, in Asia /17/ Europe /18/.

However, a significant number of scientific issues regarding the development strategy of an effective mechanism for the transport and logistics system and its adaptation to the conditions of Kazakhstan remain unsolved.

First of all, it should be noted that the cost of logistics in our country is very high, many times higher than the level of developed countries. Today the share of logistics costs can reach up to 25% of the cost of the final product in Kazakhstan /1/. At the same time the world average is at the level of 11%, it is 14% in China, around 11% in the EU, 10% in the U.S. and Canada, etc. As a result, the economy of Kazakhstan has to carry transport burden which is twice larger than in developed countries. In terms of cargo intensity Kazakhstan's economy is about 5 times less effective. Thus, not less than 9 tonne-kilometers of transport work accounts for each unit of GDP in dollar terms, but cargo intensity in the European Union consists of less than 1 tonne-kilometers.

Taking into consideration the internal and external challenges and related opportunities within the key strategic documents of Kazakhstan, the following key objectives are put /19/:

- To become a major logistics hub and transit point of the Eurasian region. A key focus will be laid on attracting transit between China and Europe (the new Silk Road), China and Russia, Europe and Central Asia;

- to realize export potential and domestic needs of the national economy to the maximum;
- to increase the mobility of people and realize the tourism potential of the country.

For the implementation of the first and second objectives Kazakhstan will create a powerful network of transport and logistics centers, both within the country and abroad.

Export-oriented part of the system is based on a network of cross-border transport and logistics centers (TLS) in Kazakhstan, of which the eastern gate - Horgos / Dostyk and western gates - Aktau port, as well as numerous TLS in places repayment of export flows around the semi-circle to the north-west, west and south-west of Kazakhstan, covering the west of Russia, Europe, and up to the Persian Gulf region will be the most important ones.

The formation of such system and its management is a task that needs to maximize efforts and innovative logistics approach, for which a national logistics operator will be created on the basis of JSC «NC KTZh» (National Company «Kazakhstan Temir Zholy» («Kazakhstan Railways»)). High standards of logistics services based on the principles of «5S»: price, service, speed, security, stability will be assigned through the efforts of this operator in Kazakhstan.

II. Unresolved parts of a problem

Existing studies are often a general theoretical consideration of the problem, they mostly do not contain a detailed analysis of the Kazakhstan's TLS market and its segmentation, depending on the direction of shipping operations. There is no work determining the root causes and factors, the key risks that arise in the process of formation and development of RK TLS and giving approaches to solving this problem. A small attention is paid to the reasons for the low efficiency of RK TLS, there are no recommendations on how to improve competitiveness.

To assess the efficiency of transport and logistics systems an appropriate index of the World Bank (LPI) is used in the world. According to the results of 2012, Kazakhstan took 86th place in this ranking (Germany is the leader, China - 17th place, Russia – 94th place). It should be noted that Kazakhstan has relatively low positions (below average) according to all indicators in the context of the individual components: in the simplicity of the organization of international transport (92th position), the quality of infrastructure (79th position), the effectiveness of customs (73th position), competence in logistics (74th position), the ability to track goods (70th position) and compliance with the terms of delivery (132th position). All the indicators leave much to be desired /20/.

According to a forecast for 2020, Kazakhstan plans to take place not less than 40th position (intermediate point - 50th position in 2015) in LPI ranking. In this case, the transport component of the GDP should be reduced from 8.1% in 2010 to 7.5% in 2020, which means a drastic increase in the efficiency of transport and logistics

system and the growth of value added in the economy. The share of (logistics) services in total revenue for transportation and logistics complex will increase from 8% to 25% (in Europe, for comparison, the figure reaches 50%).

III. Methodology

The research included analysis of the literature and study practices of foreign countries and domestic experience, as well as a questionnaire. Employees of the Ministry of Transport and Communications of the Republic of Kazakhstan, JSC «NC KTZh», workers in the transport and logistics centers participated in the survey. In total, 60 people participated in the survey. It included questions on the issues of determining problems and key risks, assessing the impact of the direction of traffic on the strategic goals of TLS.

The purpose of the study. The purpose of the study is the research of influence on the development of freight transport and logistics system in Kazakhstan.

To achieve the goal the following tasks were put:

- selection of the main factors that influence the development of TLS freight transport;
- examination of correspondence of current transport and logistics system to prospective requirements;
- evaluation of the influence of the direction of freight transport to the strategic objectives of TLS;
- development of recommendations on the development prospects of TLS freight transport.

IV. Main results of the research

1. Main problems.

The high rate of economic growth of the country has led to the rapid development of the transportation system which influences signigicanlty and has high requirements to transport and logistics services.

Challenges to realizing the potential of the export and transit of Kazakhstan are systematized and presented in Table 1.

Table 1. Key constraints to the implementation of the transit and export potential of Kazakhstan

	Constraints	Problems
1	Infrastructure constraints and a lack of rolling stock	- shortage of rolling stock, rail and marine vessels; - shortage of high-end road; - low capacity of customs checkpoints; - shortage of transport and logistics centers
2	Absence of systematic management of transport corridors	- little effect on the distribution of traffic; - the lack of flexible integrated tariff policy; - shortage of coordination in the transport and transit

		corridors; - insufficient promotion of corridors, as complex products.
3	The low level of logistics service	- low level of containerization; - low level of market of logistics services and logistics culture; - Duration of customs clearance.
4	Institutional constraints in the control system	- differentiated tariff policy on the various modes of transport; - lack of coordination among agencies and countries of the international transport corridor; -high share of the informal (shadow) sector in the operations.

Infrastructure constraints and a lack of rolling stock

One of the major infrastructural problems of freight traffic is high wear of mainline network. According to the annual reports of JSC «NC KTZh» (JSC «National Company «Kazakhstan Temir Zholy»), the length of sections of main railway network in poor condition increased to 127% and constituted 424 km from 2007 to 2011. The number of faultiness of 4th degree amounted to 11,206 units, the third degree - 181 units in 2011. These indicators of the track facilities have limited technical weighted average speed up to 69 km /h.

On the one hand, this situation is caused by insufficient infrastructure financing due to tight tariff regulation, on the other hand, the non-use of modern asset management systems, which allows to assess the actual state of infrastructure adequately and reduce significantly the cost of maintaining it. The consequence of this situation can be a significant slowdown in the growth of export and transit traffic due to reduced safety and speed, as well as the instability of the terms of carriage.

The similar problem, but in the road transport infrastructure, is the lack of high-end road. Thus, the length of highways of Ist and IInd class is only 19% of the total length of roads of national significance. 21% of the existing road network is in poor condition.

Another problem is the lack of capacity of the existing transport and logistics centers (TLC) on the border with the People's Republic of China (PRC) - a key exporter to Western Europe, a transit route which passes through the territory of Kazakhstan, as well as a weak presence of RK in the key points of formation and maturity of goods outside the country - in China, Russia and Western Europe. One of the reasons is the lack of a systematic approach to the development of the TLC network.

Limited capacity to provide back load containers generates the deficit of containers, which also reduces the possibility of increasing the volume on transit traffic of the RK, as the Chinese side does not provide their containers for shipment.

Opportunities to increase export cargoes and support the growth of the economy is also facing a shortage of rolling stock. According to the specialists of «NC «KTZh», the shortage of freight cars can be up to 20 thousand units of rolling stock. The reasons for this is the high percentage of depreciation of freight cars and the lack

of developed mechanisms to support the renovation of the carriers in the park. If kept at current levels or increasing scarcity of railway, transportation can become a bottleneck in the economic development of cargo intensity industries.

Inefficiency of customs checkpoints negatively impacts on the possibility of increasing the transit and export cargo, reducing the speed and predictability of the delivery time of cargoes on borders of Kazakhstan. Customs procedures in RK are long and expensive - the efficiency index of customs procedures, calculated by the World Bank, in 2012, was 2.4 units, while it constituted 3.2 units in China, and 4.0 units in Germany. The cost of customs procedures per container is 3.2 thousand U.S. dollars, it constitutes 1.8 thousand U.S. dollars in Russia, in China - 0.5 thousand U.S. dollars /20/.

Absence of systematic management of transport corridors

Key international transport corridors, where transit carries out through the territory of Kazakhstan, are passed through the number of neighboring countries. Lack of coordination of efforts of Kazakhstan and the countries of the international transport corridors on the issues of creating transparent tariff policy for shippers, unity and ease of customs procedures and ensuring the smooth passage of transit trains throughout the corridor, as well as joint promotion corridors are complicated and raise the price of transportation process, thus making transportation more costly and unpredictable over time. The main competitive advantage of transit through the territory of the Republic of Kazakhstan in the direction of China - EU countries compared to sea through the Suez Canal or the Cape of Good Hope is the speed of transportation, if there is a lack of coordination corridors across the territory of the Republic of Kazakhstan will become less attractive in comparison with competitors.

The low level of logistics service

In Kazakhstan there is the lack of development of integrated logistics services (contract logistics market), which constitutes, according to experts, about 10% of the market for transport services, while in Western Europe the figure exceeds 50%. The relative immaturity of the sector is reflected in the absence of supply in the market for integrated logistics planning, integrated multi-modal transport and transport from door to door of the «one hand». The consequences of this situation are the reduced productivity and cost-effectiveness of most industries and sectors, which actively use the vehicles, creating for this purpose their own transport and logistics units and investing in their own logistics capacity.

It is difficult to clearly identify the cause-and-effect relationship of this problem, because, on the one hand, the market is not developing due to lack of demand for such services and, on the other hand, the demand is not growing due to lack of customers' ideas on the benefits of transfer logistics services for outsourcing.

Institutional constraints in the control system

Differentiated tariff policy reduces the attractiveness of individual types of transport and results in lower socio-economic efficiency of freight movements. Analysis of the world practice shows that transport primarily serves transfering role,

and provides shipping operations in a relatively short distance. However, motor transport competes with rail traffic in the RK, even at great distances, due to the artificial price advantage. Thus, the presence of infrastructure component in the fees in railway tariffs is absent in auto traffic, i.e. commercial carriers do not pay for the use of roads. This fact leads to the development of less-effective of road transport in terms of socio-economic and environmental point of view.

Air transport is also becoming less competitive due to the restrictions imposed on the airport in terms of ability to obtain additional income from non-core activities (renting space for shops, restaurants, hotels and other related services). Thus airports are responsible for the development and maintenance of the runways - one of the most expensive infrastructure - at a given rate of return. Together, these factors are forcing airports to increase the value of their services to the airlines, which generally holds back the development of the industry.

Lack of skills and modern technology

A key disadvantage of freight transport in Kazakhstan in terms of the lack of modern technology is the lack of use of modern automated cargo management, cargo tracking, workflow, etc. In total, this reduces the speed and reliability of freight transport companies making RK relatively unattractive for providing transportation services to shippers.

Insufficient staff training also hampers the development of freight transport, especially in the development of integrated logistics services. The main reason is that the training system in the transport sector of Kazakhstan is more traditional and does not provide a comprehensive training process of logistics planning and management. Practical training and education abroad is also relatively underdeveloped in the transport sector of Kazakhstan.

In addition to common problems, the specific problems of each segment can be identified. Thus, in the freight sector it can be noted a lack of integrated logistics services and the lack of systemic administration routes and corridors, reducing their attractiveness to shippers.

The problems, their main causes and resulting risks for Kazakhstan are identified through the questionnaire of survey experts.

2.Expert assessment

To assess the impact of the above-mentioned problems in the development of Kazakhstan's TLS in the main areas of freight we conducted these studies.

Expert evaluation of impact on development purpose of TLS directions was conducted: transit (TT), export (ET) and internal (IT).

The evaluation was conducted on the basis of whether these directions of freight have any influence on the strategic purposes of TLS development. The evaluation

was conducted on the following scale: 1 - no impact, 2 - has a positive impact, 3 - has a moderate negative impact of 4 - has a significant negative impact.

The questionnaires were consctructed based on the identified obstacles to the implementation of the export and transit of goods. Assessment of the main issues in the freight sector, affecting the strategic goals of TLS, is presented in Table 2.

Table 2 – Problems preventing the realization of the potential of export and transit

Problems and consequences	Transportation directions	Assessment of the impact on the TLS strategic objectives			
		1	2	3	4
1) Wear of mainline network (MN) reduces safety, causes instability of transportation terms, which primarily reduces the attractiveness of Kazakhstan for transit	FT				+
	ET				+
	IT			+	
2) The high level of wear of the rolling stock reduces the field-performance data and outflow of operation	FT				+
	ET				+
	IT				+
3) Shortage of rolling stock holds back the development of the economy of Kazakhstan, not providing the required level of the country's transport and connectivity	FT				+
	ET				+
	IT				+
4) Outdated signaling, centralization, blocking (SCB) lead to reduced capacity and safety	FT				+
	ET				+
	IT				+
5) Monopoly of the industry, the lack of a target market model of railway services and transition plan	FT				+
	ET				+
	IT				+
6) Lack of roads of I and class II mainly inhibits the development of transit transport cars. In Kazakhstan there is a lack of I and class II roads	FT				+
	ET			+	
	IT			+	
7) Trucking companies in the industry do not have the financial resources to upgrade fleet of vehicles	FT				+
	ET				+
	IT				+
8) Lack of a competitive proposal for air service transit	FT				+
	ET	+			
	IT	+			
9) Insufficient power of port and service infrastructure for container handling reduce the competitiveness of Aktau	FT			+	
	ET				+
	IT	+			
10) Lack of merchant fleet reduces export-import potential of Kazakhstan in the direction of North-South	FT			+	
	ET				+
	IT	+			
11) A large multi-modal transportation and logistics hub can be created on the basis of Atyrau port	FT			+	
	ET				+
	IT	+			
12) The absence of maritime administration in RK	FT			+	

hinders the development of the national maritime	ET				+
	IT	+			
13) Shallowing of the Black Irtysh hinders the development of cargo shipping between China, Kazakhstan and Russia	FT				+
	ET			+	
	IT	+			
14) Lack of influence of RK on the distribution of transit traffic reduces the amount of potential transit through the territory of the country	FT				+
	ET			+	
	IT	+			
15) The duration and instability of timing by poor transport participants reduces the attractiveness of routes passing through Kazakhstan	FT				+
	ET				+
	IT			+	
16) «Bottlenecks» of the transportation network limit the capacity of corridors	FT				+
	ET				+
	IT			+	
17) Imbalance of freight flows in the main transport corridors	FT				+
	ET				+
	IT	+			
18) Lack of integrated supply route in one package from a single source makes it difficult to interact with carriers for potential shippers	FT				+
	ET	+			
	IT	+			
19) Lack of practical cooperation between the member countries of the international transport corridors	FT				+
	ET			+	
	IT	+			
20) The low level of containerization limits opportunities to increase export and transit	FT				+
	ET				+
	IT	+			
21) The lack of development of integrated logistics services (contract logistics market) reduces the efficiency of shippers and transportation companies of Kazakhstan	FT			+	
	ET				+
	IT				+
22) Duration of customs clearance reduces the attractiveness of Kazakhstan for transit and the competitiveness of domestic producers	FT				+
	ET				+
	IT	+			
23) Differentiated tariff policy reduces the attractiveness of the individual types of transportation and leads to social and economic inefficiency	FT				+
	ET				+
	IT				+
24) Absence of a law on the transit of goods through the territory of Kazakhstan hinders increasing the volume of transit	FT				+
	ET	+			
	IT	+			
25) The absence of the international legal framework of advisory secretariats for transit routes	FT				+
	ET			+	
	IT	+			
26) The low degree of coordination of Chinese and Kazakh customs and border services, clock mode of customs work	FT			+	
	ET			+	
	IT	+			
		18	-	16	44

Note:1.Transportation directions: TT-transit; ET-export; IT-internal;

The impact on the TLS strategic objectives: 1 - no impact;
2 - has a positive impact; 3 - has a moderate negative impact;
4 - has a significant negative impact.

The problems in question have a significant negative impact on the TLS development purpose (44 of 78 answers or 56.4% answered positively).

It is clear from Table 1 that transit transportation (14 responses out of 26 possible) and export transportation (15 responses out of 26 possible) have a significant negative impact on the TLS development purpose. Both transit and export of transportations have moderate negative influence (6 out of 26 possible answers).

3.Main findings on TLS development

Thus, we can conclude that transit and export shipments significantly influence the achievement of the TLS development purpose, while domestic cargo has no significant impact on the achievement of TLS development purpose.

Based on these problems and answers of experts to the suggested group of projects and tasks, we grouped tasks and projects for the implementation of transit potential, development of export and domestic needs of the economy.

Each group of tasks (project or initiative) was justified and chosen based on the prioritization of tasks and appropriate criteria.

First group: Key initiatives and priority projects for the implementation of transit potential.

The following criteria of attractiveness and feasibility were presented to determine the priorities:

• attractiveness criteria: a contribution to the reduction of transport costs, contribution to the increase in the rate of transportation of goods in transit, demand in the market of transport and logistics services

• feasibility criteria: the amount of investment, an appropriate legal framework, the availability of appropriate personnel and skills.

In accordance with the criteria of attractiveness and feasibility a number of the most attractive projects and initiatives, combined in the following groups were highlighted:

- the construction and development of roads that form the international transport corridor Western Europe - Western China;
- the development of a TLC transit cluster: Horgos, Dostyk Almaty;
- the development of the agency network in the area of origin of mass, transfer and redemption of traffic to promote transport and logistics services along the corridor Western Europe - Western China;
- increase in the rolling stock (phytic platforms and containers);
- creating an integrator company for complex services on the route and supply route in one package;
- improving the efficiency of customs checkpoints.

Second group: Key initiatives and priority projects for the development of export and domestic economic needs.

Priority areas focused on the development of transport infrastructure, the introduction of modern logistics and the new competitive market model are in the area of export shipments.

To prioritize projects and initiatives the following criteria of attractiveness and feasibility were highlighted:

• attractiveness criteria: a contribution to the reduction of transport costs, contribution to the increase in the rate of transportation of export goods, the demand in the market of logistics services;

• feasibility criteria: the amount of investment, an appropriate legal framework, the availability of appropriate training and skills.

In accordance with the criteria of attractiveness and feasibility a number of the most attractive and the projects and initiatives, combined in the following groups were highlighted out of the entire list of projects:

- construction / development / reconstruction of railways and roads, export-oriented services;
- construction / development of the internal and external TLC network;
- support to increase the rolling stock, ships, fleet;
- increasing the level of containerization;
- improving the efficiency of customs checkpoints;
- creating integrator for complex services on the route and supply route in one package;
- the transition to a competitive market model of rail freight;
- encouraging shippers to adopt modern logistics processes;
- elimination of the price and legal discrimination regarding rail car.

Conclusion

These problems cannot be solved without the participation of the public and special bodies that would be involved in these problems.

Thus, a separate government agency that would be responsible for the development of logistics, such as the Department of Logistics at the Ministry of Economy and Budget Planning of the Republic of Kazakhstan can be organized to implement the functions of state regulation of logistics, which have emerged in developed countries, as well as to solve additional tasks in the catch-up strategy in Kazakhstan.

Ministry of Economy and Budget Planning will be cross-sectoral regulatory agency, which will contribute to the comprehensive development of the logistics industry in the country.

It should be noted that overcoming the gap with developed countries is possible by borrowing advanced production and management technologies and their

distribution among Kazakhstan's subjects of logistics activities as well as through the implementation of some breakthrough innovation in the industry.

To solve this problem the Centre of logistics research and development can be created in Kazakhstan, which would operate under established Department of Logistics (there can be another organizational option).

The Centre is necessary to perform the following key functions:

1) research and adoption of advanced technologies in the field of logistics and their adaptation to the functioning of the logistics market in Kazakhstan;

2) creation and implementation of innovative projects in the field of logistics and their implementation;

3) preparation of logistics specialists of high qualification.

The Center can perform the following tasks:

• study of modern technologies of SCM (Supply Chain Management);

• research on the TLS development strategy;

• examination and justification of logistics centers with state shares;

• development of a standard software or information management for logistics operators, centers and networks;

• development of training programs for training and retraining of personnel in the field of logistics.

Thus, to overcome the backlog and further development of logistics in Kazakhstan it is necessary to use the strategy of catching up. The experience of other countries shows that successful implementation of this strategy requires an appropriate institution (agency), the analysis of functions of which allows us to conclude that this institution should be public.

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CHAPTER 3. ANALYSIS AND ASSESSMENT OF THE TENDENCY OF INDUSTRIES DEVELOPMENT AND NATIONAL ECONOMY SPHERE

3.1. ANALYSIS OF A TENDENCY AND PROSPECT OF DEVELOPMENT OF THE MARKET OF LOGISTIC SERVICES: ON THE EXAMPLE OF KAZAKHSTAN[10]

Abstract. Active processes of globalization, growth of scales and number of multinational corporations generated need of introduction in business system global logistic chains and channels, first of all in distribution of goods, defined formation of the independent market of logistic services.

In the article tendencies of development of the market of logistic services in world and Kazakhstan economy are analyzed. On the basis of research problems and the factors interfering development of the market of logistic services in Kazakhstan are revealed. The most perspective ways of development of the market of contract logistics in Kazakhstan are defined.

Coordination of a state policy of the domestic logistics development and formation of the centralized institute of management are necessary for full development of logistics. The results are intended for companies that provide logistics services and government agencies, that make decisions in the field of logistics.

I. Introduction

Problems and prospects of Kazakhstan market of logistics

Development of the market of logistics services will allow the Republic of Kazakhstan to use fully an advantageous geographical position and to increase transit of freights across the territory of the country, to create new workplaces, to increase receipts of currency revenue.

50% of all export of services are the share of transport services in the country, and it is one of the most important directions of export strategy of the Republic of Kazakhstan. Transport services render the railway and motor transport; water transport; oil and gas transport system; air transport, transport and forwarding organizations.

Today Kazakhstan, owing to its geographical position, has certain logistic features and advantages. Through the territory of the republic passes about five international transit ways and some large pipelines.

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Additional opportunity for development of the market of logistic services in Kazakhstan is creation of the Customs Union (CU) of Kazakhstan, Russia and Belarus as a result of which inner-union borders became officially open and the overland border with China became more available now to Europe.

Now in sector of logistics the complex of problems collected, it concerns infrastructure and technologies developments, information support, common information space creation.

Logistics development in Kazakhstan influence, first of all high dynamics of economic development which demands the corresponding evolution of the transport system capable effectively serves logistic requirements of new economy. Within State Program of the Forced Industrial and Innovative Development of the Republic of Kazakhstan (SPFIID) at the current stage there is a modernization of traditional economy which has to create the base for industrial breakthrough. Respectively already today the developed basic transport and logistics system which will freely serve logistic requirements at competitive cost is necessary.

Secondly, high transit capacity of the country. Kazakhstan, being in the center of the Eurasian continent and possessing a wide transport and communication network, has sufficient potential to be a significant link of transcontinental Europe Bridge — Asia. In the republic has been already created developed network of the transit routes passing through Kazakhstan, in three priority directions: 1. Russia, countries of Europe and Baltic; 2. China, Japan and countries of South East Asia; 3. Countries of Central Asia, Transcaucasia, Black Sea, Persian Gulf and Turkey.

The market of transport and logistics services of the Republic of Kazakhstan is at a formation stage. Nevertheless, already now more than 200 leading transport and logistics companies, members of Association of national forwarding agents of the Republic of Kazakhstan (ANEK), the Kazakhstan association of carriers and operators of a rolling stock (KAZAPO) and the union of the international automobile carriers (KAZATO) which on the volume and a complex of provided services (transportation by all means of transport, customs registration, insurance etc.) don't concede to the foreign operate on it. It is possible to carry to the main companies: JSC NK Kazakhstan Temir Zholy, MEK Transistema LLP, Kazinterfrakht-Aktobe LLP, Continent Logistics LLP, JSC Kedentransservice, etc. (Association of national forwarding agents of the Republic of Kazakhstan (ANEK); Transport and logistic association «KAZLOGISTICS»). In the market there are a limited number of large logistic operators: "DAMU", JSC Astana-Contract, JSC Kedentransservice.

Along with the large companies in the republic in the market of transport and logistics services there are about 3000 legal entities and the individual entrepreneurs which activities for delivery of freights in the international message are limited directly to services in freight maintenance in a way, to registration of customs, commodity-transport and other transportation documents, and also intermediary services. By the nature data of structure can't solve major problems on optimization of cargo streams. In these conditions construction of the transport and logistics

centers will allow already existing national logistic operators to expand sales markets and a range of provided services, offering transit services (warehousing, consolidation, repacking etc.) for the largest international logistic operators.

In Kazakhstan the first logistic structures conforming to requirements of the international standards, appeared only in 2007 - there were opened logistic centers in the industrial zone of Almaty area and on the basis of the customs boundary terminal "Kedentransservice" (Almaty). However until recently transit logistic services in the republic didn't become the leading sphere of attraction of investments. The share of such services in the total amount of export operations of the country makes to 12% that is 3 times lower than the average world indicator. Thus the main article of export of services (50%) is forwarding activity of the Kazakhstan subjects of managing. Formation of modern transport and logistics system assumes creation of the corresponding infrastructure on the basis of progressive transport and logistics technologies, forms of the organization of production and delivery of freights, and also a network of the transport and logistic centers.

According to Transport strategy in the territory of the Republic of Kazakhstan the network of the large logistic centers which, in turn, will allow already existing national logistic operators to expand sales markets and a range of provided services has to be formed. Formation of such centers conforms to requirements and tendencies of development of the world market to what experience of countries of Western Europe testifies. So, in Holland their activity brings in 40% of the income of a transport complex, in France – 31%, in Germany - 25%. In the countries of the Central and Eastern Europe this share on the average makes 30% (Smorchkov, 2012).

Today at a stage of construction there are 9 logistic centers. It is put into operation and completely works only 4 of them. Among them - the industrial and logistic center "Damu" — the logistic center of new generation rendering all complex of intermediary services in logistics (was put into operation in 2007 and it isn't used yet fully). It is one of the republic's first logistic operators of level 3PL rendering a range of logistic services in the scheme "producer - consumer" with the minimum participation of the client in this process. It is equipped with the rack system conforming to the European standards and existing international standard requirements. The hi-tech control system of processes (WMS, ERP, informing on the order location in real time) is introduced. The logistic operator renders services in storage of the packaged and oversized goods, loading and unloading works, processing, transportation and forwarding of freights, customs escort of goods.

II. Literature review

Issues of the market of logistics were touched within researches on development of the international market of services in works of foreign economists of Lavlok (2005), Markusen (2000), Berman (2001), Steven (2008), Russian scientists Prokofyeva and Sergeyev (2012), Belarusian scientists Medvedev and Pochechkina

(2004) and some other economists, in which services of logistics are considered as important and dynamically developing sector of the world market of services. In researches of the American, English, German logistics specialists aspects of influence of effective management with material streams are allocated for competitiveness of the company; however the specified researches don't allocate a problem of transport sector of logistic services. In this direction there is interesting research of a role of transport and logistics services in development of national economy and influence of marketing strategy on efficiency of activity of the companies of this sector in the foreign markets, carried out by the Lithuanian logistics specialists, the staff of the Vilnius technical university Butkevicius and Viskupaytis. Problems of the international and Belarusian market of transport and logistics services were considered in work of the Belarusian scientists Bulavko and Nikitenko (2009). Caraiani (2008) researches of a tendency of development of providers of logistic services, new logistic services of the enterprises of China (Zhou and Wang, 2010), world experience of application of logistics (Shkoda, 2012), research of factors of logistics (Zhou and Xie, 2010), scenario research about prospects of development of branch of logistic services in 2025 (Heiko and Inga-Lena, 2010) are conducted.

However fast change of this market in the conditions of globalization demands continuous studying of new tendencies of its development.

In the international market of logistic services it is possible to allocate a number of characteristic tendencies of its development.

1. Actively there are processes of globalization of the logistic companies at the expense of merges and absorption, consolidations of their business. As a result there are observed strengthening of positions of the companies with the developed logistic network, services representing a complex and wide geography of internationalization of business.

Examples of activity of the largest international companies in the market of transport and logistics services confirm a tendency of their geographical and assortment diversification in regions of the Central and Eastern Europe on the example of the Schenker Assen (Germany), Panalpina Basel (Switzerland), Excel PLC Berkshire (Great Britain), Kuehne & Nagel International (Switzerland) (Kuehne + Nagel, 2011).

2. The following major characteristic of the modern market of logistic services is increase of a role of information technologies in activity of the companies, in particular, reliable telecommunication systems and the software, automation of links of a logistic chain.

3. Formation of firm logistic networks and the international centers of logistics (ICL) - one more characteristic tendency of the market of logistic services. Such centers are created by the largest corporations for increase of efficiency of logistic functions.

For example, in recent years large producers of high-tech production, such as DEC (Digital Equipment Corporation — USA) and Sony (Japan), is created a number of ICL.

4. Despite high degree of efficiency of intra firm logistic chains, the outsourcing of the services which has received in foreign practice the name "contract logistics" becomes the major tendency in the market of logistics.

Attraction of services from the outside gives the maximum flexibility as allows to get almost immediate access to the new markets and to offer clients individual service. According to Cap Gemini Ernst & Young, by 2008 the North American companies transferred to outsourcing on the average 56% of the logistic budgets, and West European and Asia-Pacific - 81 and 60% respectively (Smorchkov, 2011).

5. The role of marketing strategy increases in competitive fight of the logistic companies in the international market. In marketing strategy of the large logistic companies prevails orientation to creation of positive image of the company and individual needs of the client, use of so-called customer-oriented marketing (a complex of the communication tools directed on formation of client base and satisfaction of individual needs of clients).

6. It should be noted separately a tendency of improvement of quality of logistic service against the growing competition. Modern business demands from logistic operators of integration into a control system of chains of deliveries of business and development of services of a value added whom treat in particular: delivery "from a door - to - doors"; just-in-time delivery; sorting and repacking of goods in warehouses; assembly of sets in warehouses; stockpile management of materials and production components; service of the end user.

Thus, the most important competitive advantages of the companies in the world market of logistic services are defined by the main tendencies of its development.

Unresolved parts of a problem

Existing researches represent, most often, general-theoretical consideration of a problem, but don't contain the detailed analysis of the market of logistic services of Kazakhstan, its segmentation depending on the transportation direction. There are no works defining the main reasons and factors, the key risks arising in the course of formation and development of logistics of Kazakhstan and giving approaches to the solution of this task. Outside attention of scientists there are reasons of low efficiency of the market of logistic services, there are no recommendations about ways of increase of competitiveness.

First of all, it should be noted that expenses on logistics in our country are very great and in times exceed level of the developed countries. So, today in Kazakhstan the share of logistic expenses can reach the level of 25% from the cost of end products. Thus the average world indicator is at the level of 11%, in China - 14%, in EU countries - at the level of 11%, in the USA and Canada -10% etc (Transport and logistic association «KAZLOGISTICS»). As a result the economy of Kazakhstan is

compelled to bear transport loading twice bigger, than in the developed countries. On a cargo capacity indicator the economy of Kazakhstan is by about 5 times less effective. So, not less than 9 ton-kilometers of work of transport are the share of each unit of gross domestic product in dollar calculation, and in the countries of the European Union cargo capacity makes less than 1 ton-kilometer.

III. Research technique

The analysis of existing literature and studying of practice of foreign countries, and also poll of the companies**,** rendering transport logistic services and consumers of logistic services (distribution networks, distributors of goods, the companies providers of logistic services, the industrial enterprises - producers of goods). In total employees of 45 companies were interrogated. By results of poll factors, problems and ways of improvement of the market of logistic services of Kazakhstan are revealed.

Research objective

To reveal the main problems and tendencies, prospects of development of the market of logistic services of Kazakhstan.

For the solution of this purpose the following tasks are set. Identification of structure and tendencies of development of the world and domestic market of transport and logistics services, and also characteristic problems of development of the market of logistics in Kazakhstan; carrying out assessment of prospects of development of the market of logistic services and its infrastructure.

IV. Main results of research

The system analysis of a transport and logistics complex revealed tendencies of development of a transport complex at the present stage of social and economic development of Kazakhstan: high wear of fixed assets of a transport complex; various rates of development of transport and logistics infrastructure in different regions; unevenness of development and infrastructure placement; insufficient capacity of port and service infrastructure; insufficient influence on distribution of transit freight traffics; duration and instability of terms of transportation; low level of a containerization; insufficient level of development of complex logistic services; duration of customs registration of freights.

During questionnaire and interviewing we received the following results.

1. Company problems in logistics questions:

First, the main problem is backwardness of infrastructure (60%) which consists in almost total absence of the modern warehouse focused on business, both in the large cities, and in regions, and even more important - shortage of the relevant transport park, both on railway, and on motor transport, and also low-quality highways.

Secondly**,** low professionalism of logistic operators (40%) and the narrow range of provided services (14,5%). From here - weak interaction with the companies clients since services of these operators are separated and don't represent harmonious system.

Most likely, it is connected with the initial stage of development of the market when parts of future uniform mechanism only try to undertake something separately. Receiving the greatest effect possibly during the work as the uniform mechanism making a uniform operated chain of deliveries (SCM) when operators create all conditions for performance of logistic tasks.

Now in Kazakhstan logistics as the complete industry is absent and is concentrated in three components: transport, warehouses and the companies - owners of goods.

As a result large producers and distributors carry out the most part of these operations in-house, i.e. use their own warehouses and a certain vehicle fleet.

2. Problems of the market of logistic services:

First, in the market of logistic services there are problems with low level of logistic service (weak quality of provided services) (31%), backwardness of transport infrastructure (28%), the small range of provided services (10%) and backwardness of warehouse economy (9%), an insufficient level of development of complex logistic services (the market of contract logistics) - 22%, duration of customs registration of freights.

3. Low level of containerization limits opportunities on increasing of export and transit.

Main problems of low level of logistic service

In the Republic of Kazakhstan the insufficient level of development of complex logistic services (the market of contract logistics), making, according to the experts, about 10% from the total amount of the market of transport services while in Western Europe this indicator exceeds 50% is observed. Relative backwardness of this sector is expressed in absence of the offer in the market of services of the comprehensive logistic planning, the integrated multimodal transportations and transportations from a door to a door from "one hands". Decline in production and economic efficiency of the majority of branches and the sectors which are actively using transport, creating for these purposes own transport and logistics divisions and investing in own logistic capacities becomes a consequence of current situation.

Accurately it is very difficult to designate relationship of cause and effect in this problem as, on the one hand, the market doesn't develop due to the lack of demand for similar services; and on the other hand, demand doesn't grow because of absence at customers of idea of benefits of transfer of logistic services on outsourcing.

4. The problems connected with backwardness of transport infrastructure:

1) High level of wear of a rolling stock leads to decrease in operational characteristics and leaving from operation.

Main reasons: rigid regulation of tariffs from AREM that constrains rates of updating of park of a rolling stock while for private operators there is no price regulation of a carriage component that allows to invest means in updating of park of a rolling stock; insufficient outputs of products of railway mechanical engineering in the territory of the country don't satisfy requirement of railway transport, thus, that target indicators according to the Kazakhstan contents limit opportunities for import of a rolling stock.

2) Shortage of a rolling stock constrains development of economy of Kazakhstan, without providing necessary level of transportations and connectivity of the country.

Main reasons: lack of financial means to purchase carriages in connection with rigid tariff regulation of service in granting cars of inventory park under transportation; lack of repair capacities – the share of long term of not using cars reaches 20%; insufficient national capacities for production of cars.

3) The lack of highways of I and II classes constrains development of transit road haulage.

Key reasons: insufficient budgetary financing; backwardness of mechanisms of attraction of private investments into development of basic infrastructure (various schemes of state-private partnership).

4) Insufficient capacity of port and service infrastructure for processing of container freights reduces competitiveness of Aktau port.

Main reasons: insufficient capacity port and infrastructures for processing of container freights; lack of the developed port infrastructure for processing of containers; physical barriers and low investments into container infrastructure.

5. The insufficient level of development of complex logistic services (the market of contract logistics) reduces efficiency as consignors, and transport companies of Kazakhstan. In the country the low size of the market of logistic services with a high value added (Figure – 1) is observed.

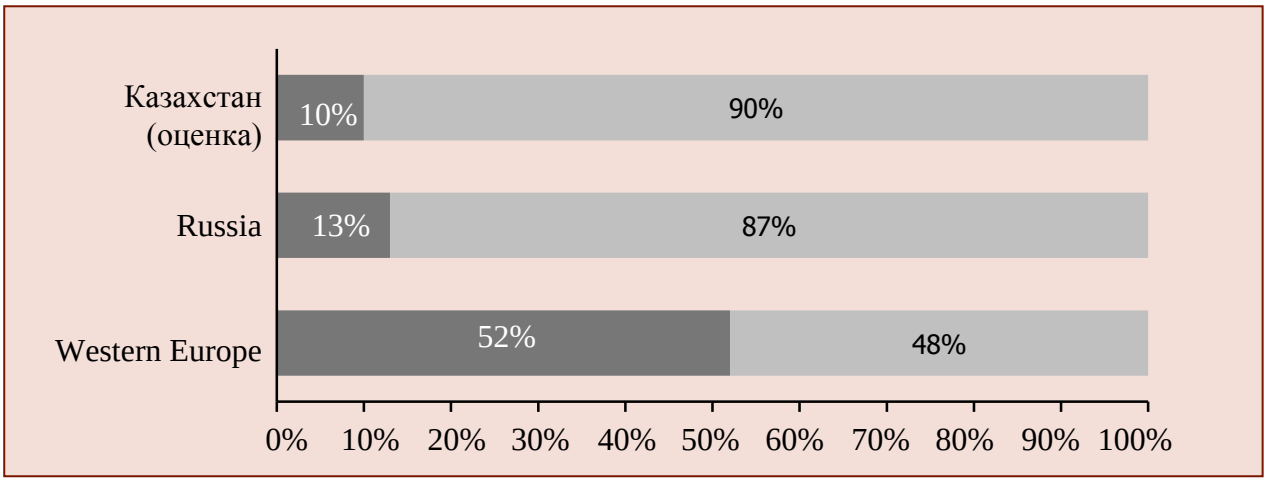

Figure 1- Share of Logistic Services in the Total Amount of the Market of Transport and Logistic Services, %

aintenance of the main problems:

- misunderstanding by customers of transport services of advantages of logistic functions on outsourcing;
- unavailability of players of the market – forwarding agents, operators of a rolling stock to rendering these services at due qualitative level;
- as a result, desire of potential clients to reserve control over chains of deliveries.

Risks for Kazakhstan which thus can arise:

• decline in production and economic efficiency of consignors because of derivation of resources on development of own logistic capacities and services;

• low profitability of transport companies because of focusing on services with a low value added.

6. Low level of containerization limits opportunities on increase of export and transit. In Kazakhstan low level of containerization (Figure – 2) is observed.

Key reasons:

- lack of container terminals (cargo yards, absence at consignors and consignees of the equipped container platforms;
- adverse tariff and customs regulations for containers including because of the container is considered as the vehicle;
- insufficient level of knowledge and understanding of advantages of container transportations by customers of transport services.

Key risks for Kazakhstan:

• decrease in safety of freights (as containers are better protected);

• limited opportunities for attraction of transit freights from China (China demands implementation of transportations only in containers, thus the country doesn't provide own containers).

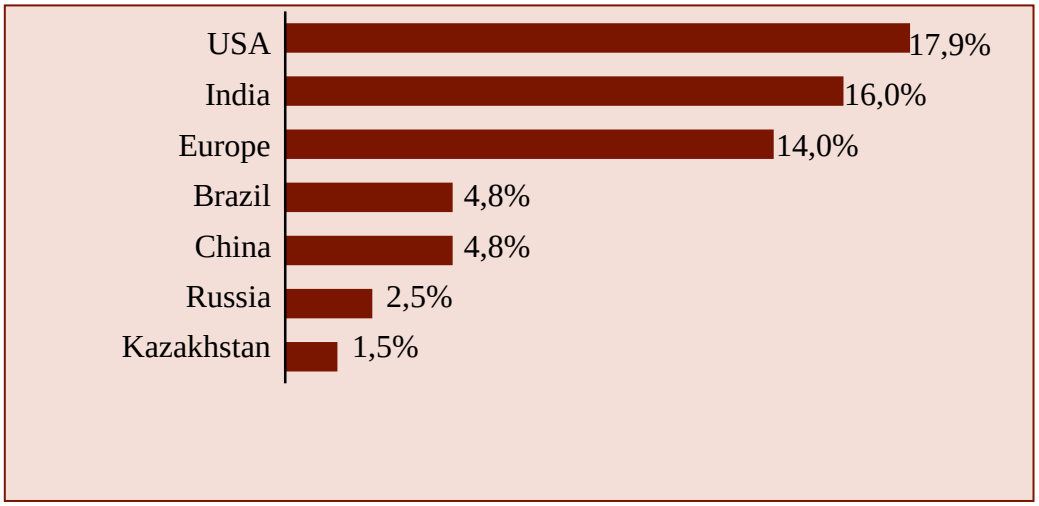

Figure 2- Level of containerization of freght traffic in the various countries (in % from the cost of freights)

7. Duration of customs registration of freights reduces appeal of the Republic of Kazakhstan to transit and competitiveness of national producers

Customs procedures in Kazakhstan are long and expensive (Figure 3). The index of efficiency of customs procedures is equal 2,4.

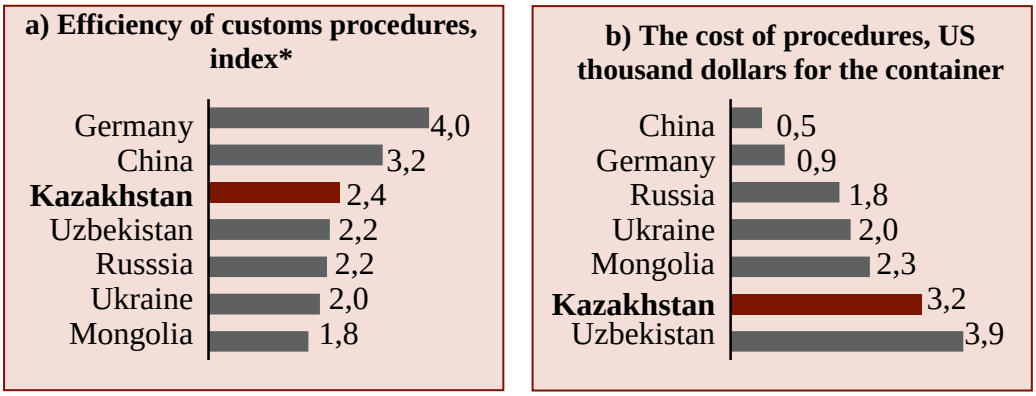

Figure 3- Efficiency (a) and cost (b) customs procedures in the various countries

Source: Logistics Performance Index, World Bank, 2011

*The index reflects the speed, transparency, simplicity and predictability of customs procedures

Key reasons:

- excess number of documents, various standards and requirements to their filling;
- insufficient distribution of modern technologies and processes of border control;
- insufficient capacity of customs posts;
- unbalanced system of motivation of employees of customs services;
- insufficient system of coordination of work of various border services.

Key risks for the Republic of Kazakhstan:

• loss of a share of the market of transit freights;

• decrease in competitiveness of national producers in grocery segments where efficiency of deliveries is important;

In the majority of the companies the functions connected with logistics, are divided into two blocks - external and internal, thus they can be called differently, for example, **external** is a purchasing department, import; **the internal** - department of logistics. Finding of acceptable options of suppliers, monitoring of the prices of raw materials and finished goods, control belong to the main functions of "external" department over timely delivery, etc. In turn, the department of logistics carries out internal distribution of arriving goods and raw materials, beginning from a warehouse of temporary storage to the end user.

Thus the companies reached certain results: according to poll, in a transport component of logistics of 80% of respondents have the vehicle fleet or long-term contracts with transport company. In the sphere of stockpile management of 70% of respondents in definition of a necessary stock rate apply historical data and calculate at least in the Excel program, or 1C that too is a quite good indicator, 30% use the special software which calculates a necessary stock rate, supervises them and makes the recommendations about a stock rate (Table – 1).

Table 1. Assessment of extent development of logistics elements in the company

	Stage of development 1		Stage of development 2		Stage of development 3	
Transportation	The order of vehicles as required at the logistic companies or individuals	20 %	Long-term relations with transport company. Certain guarantees on safety and terms thanks to the contract	80 %	Enters into the integrated chain of deliveries which guarantees accurate terms of deliveries, the safety, the smallest expenses, the corresponding service	0%
Stock management	The necessary stock level is determined by the recommendation of the employee responsible for this direction	0 %	The necessary stock rate is calculated in the Excel program on the basis of historical data	70 %	The necessary stock rate calculates the special software which supervises and makes the recommendations about a stock rate	30%
Warehousing	Paper accounting of commodity turnover. Big share of own warehouses of a class C (the former production buildings, initially unadapted under warehouse)	60 %	Electronic accounting of commodity turnover. Storage in leased warehouses of a certain class which according to standards correspond to stored products	20 %	Use of complex warehouse services which include storage, shipping and loading operations, the accounting of stocks, etc. Electronic commodity turnover, accounting of stocks in real time	20%
Source: according to questionnaire of specialists of the company						

In warehouse economy business is worse. As showed results of poll, 60% of the companies use a class «C» room that means their small fitness to storage of goods. However the advanced practice here is modernization of warehouses in the many-tier systems of warehousing equipped with warehouse special equipment and certain software.

Probably, for a present stage of development of the companies this structure is the most acceptable. But, as respondents note, thus there is a problem of backwardness of internal communications (nearly 60%) and deficiency of the qualified experts (40%). As a result necessary information cannot reach or long reach the manager who has to make the decision on her basis.

Thus the companies reached certain results, according to poll, in the **transportation sphere**. In a transport component of logistics of 80% of respondents have the vehicle fleet or long-term contracts with transport company. Other 20% of the vehicles interrogated the order carry out as required at the logistic companies or individuals. Thus there is no compliance to standards of the transportations, any guarantees on terms and safety. In the world market transport and logistics services, generally carry out the specialized organizations.

In warehouse economy business is worse. Across all Kazakhstan the market capacity of warehouse real estate is equal to 2 million square meters. Growth of the market by 20-25% is annually predicted.

The main consumers of the modern warehouse areas now are: distribution networks, distributors of goods, the companies' providers of logistic services, the industrial enterprises – producers of goods.

About 70% of volume of warehouse is concentrated in Almaty and Almaty area. According to the High Tech Logistic Company today in Almaty there are about 600 warehouses of various type, and practically all from them don't conform to such basic standards, as a temperature mode, control of level of a dust and humidity, etc.

Professional warehouses occupy only 2% of market size (class A), 13% are remade of hangars, air-raid shelters and other production buildings semi-professional warehouses (class B) and 85% - the warehouses of the Soviet Union era which aren't conforming to modern requirements (category C and D). Till 2009 the share of warehouses of a class A dominated.

The logistic companies working in regions are seeing its strategies in position of strengthening in the available markets (33%), increase in the share in the local market (32%), expansion of own share in border areas (18%), expansion of the share in the regional market (17%).

The majority of warehouses in regions distributors or producers own. Thus modern logistic warehouses, terminals are absent completely.

According to official statistics, as a whole more than 1600 operators - the companies providing transport and logistics services about the country work. It is quite obvious that the big share belongs to the market very remotely, and the ranges of the others are just not full. In any case it is possible to notice a certain revival in some regions. So, such oil regions reacted to demand in transport and logistics services, as Atyrauskaya, Mangystauskaya and Kyzylordinskaya areas. Naturally, the number of operators in Almaty and Astana increased, on the other hand, - decreased in the North Kazakhstan and Kostanayskaya areas.

At a choice of providers of logistic services for users the great value has compliance of a ratio price/quality and observance of the schedule of delivery (showed in table). According to poll, they take the first places as cost is usually overestimated and there are difficulties in observance of schedules (Table – 2).

Table 2. Distribution of criteria at a choice of providers of logistic services (on five-point system), in points

Criteria	Answers in points
Cost of services	4,8
Observance of the schedule of delivery	4,0
General time of deliveries	3,7
Observance of standards of storage	3,5
The range of accompanying services	2,3
Quality of additional service	2,2
Source: according to questionnaire of specialists of the company	

As practice showed, first of all representations of the international FMCG companies are interested in warehouse of classes "A" and "B" (Coca-Cola, P&G, Efes, Philip Morris, etc.) that, most likely, is connected with understanding of advantage of these services from the international experience. Big potential interest is shown also by representatives of a local retail for whom some factors are important: high-quality storage, the accounting of a commodity stream and fast service on cargo handling.

The companies need warehouses first of all with an extensive network of shops. However to contain in addition warehouses leads to increase of cost of production therefore as alternative to opening of the warehouse outsourcing can serve the professional warehouse operator.

The demand in similar warehouses is emphasized also by local producers/distributors of FMCG. Besides simply high-quality responsible storage additional services are also necessary to these companies. It is possible to refer acceptance, processing, storage and distribution to them according to demands of clients, thus there has to be a uniform integrated system which allows tracing freight passing on all chain. Besides, it is more expedient that all range of services was carried out by one logistic operator. It is very high level of technologies and service and, unfortunately, while such companies in Kazakhstan simply aren't present.

In our opinion it is necessary for the country to show interest and to provide financial investments in construction of new warehouses and developer activities for modernization of the existing. Within the increased priority of transport and transit potential the part of the means accumulated by the state can come to warehouse capacities.

First of all it can be connected with creation in some regions (Aktobe, Aktau, Karaganda, Shymkent) logistic parks.

The old warehouses which have remained still since the Soviet Union, can't cope with such huge stream anymore. Respectively, there is a need for fast, high-quality transportation of goods and various freights about the country and out of it.

Now the main demand is concentrated on warehouse of lower class.

For the last five years the number of the logistic and transport-forwarding companies increased by 76%. Nearly 60% from them are in Almaty. 80% of transits

freights due to the lack of warehouse infrastructure are processed in Almaty, and then go back to regions.

The main conclusions according to the analysis of the transport and logistics centers

In providing logistic services the special place is taken by infrastructure, in particular, the transport and logistics center (TLC). TLC – is rather small, but a key segment of transport branch of Kazakhstan, possessing high potential of development. Today in Kazakhstan the considerable need for modern multifunctional and multimodal TLC is felt.

Now in Kazakhstan there are 19 transport and logistics centers. The bulk of the warehouse and terminal areas in the Republic of Kazakhstan belong to class "B" infrastructure. 9 projects on construction of new TLCs are at a completion and coordination stage.

The analysis showed that the transport and logistics centers are insufficiently developed in Kazakhstan. The basis of goods turnover of TLCs is made by transfer of containers. The role of container transportations continues to grow. Level of multimodal transportations in Kazakhstan is the lowest.

By questions of regulation and management of a segment of TLCs it is carried out within territorial planning. The special law on TLCs in Kazakhstan doesn't exist as well as a state program on TLCs network development. Implementation of separate projects the active role is played by the ministries, and also administration on places.

In the country shortage of modern warehouse and class "A" terminals is sharply felt. The majority of existing capacities are concentrated round Almaty. Development of the comprehensive program is necessary for coordination and consolidation of efforts on development of the transport and logistics centers for development of logistic services in Kazakhstan.

Conclusion

Development tendencies

In Kazakhstan the professional market of transport and logistics services only arises and expected very much its rapid development. It is connected with a number of reasons:

- it is observed increasing of demand for the market of outsourcing logistics of the class A, which consumers are as the small companies which don't have own warehouses, and the large companies;
- increasing of demand for logistic services, first of all on class A warehouses, including in regions, and construction by their private companies without state participation;

- annual growth of goods turnover in the country is accompanied by increase in demand for logistic services and neediness of their domestic companies, expectation of arrival of the foreign company of logistic services with the technology;
- absence of the full-fledged market of logistic services, there are separate elements of logistics, such as a cargo transportation, forwarding services, undeveloped warehouse economy;
- there is a demand for transport and logistics services in regions that leads to expansion of logistic activity of the companies in regions where there are no modern warehouses, terminal complexes.

The most perspective ways of development of the market of contract logistics

- complex logistic service of the client – full outsourcing of logistic services;
- development of the network logistic providers providing standard complex services to clients in all territory of Kazakhstan;
- development of logistic providers of the levels 3PL and 4PL exercising strategic control of all logistic component of business of the client and management of other logistic companies;
- development of strategic partnership with the production and trading companies.

By expert estimates, complex customer service of 3PL by providers of logistic services provides them much higher level of the income on the capital in comparison with traditional carriers.

Creation of a network of the logistic cargo processing centers on territories of Kazakhstan and formation on their basis of regional logistic transport and distributive systems has to be a component of the state transport policy and play the leading role in development of transport infrastructure, rationalization of transport economic relations both all system freight-and merchandising.

The condition of transport and logistics infrastructure in Kazakhstan demands radical modernization, reconstruction and updating. The solution of this task in medium-term prospect is impossible without broad attraction of the private capital, first of all domestic. For this purpose by the state the corresponding conditions have to be created. Growing value of social and production infrastructure, responsibility of the state for its development at limitation of financial opportunities define need of updating and improvement of investment tools for increase of efficiency of expenses and fuller satisfaction of requirements of society. One of perspective solutions of an investment problem is association of resources and actions of the state and the private sector in various forms of state-private partnership.

For increase of efficiency of functioning of national logistic system it is necessary to solve a number of important tasks:

1. To provide the state support of inflow of foreign investments into this sector of services, in particular through construction of the logistics centers. Emergence of

multinational corporations with their advanced strategy and technologies will help to create the stable and successful market of logistic services.

2. Expand considerably a complex of transport and logistics services (including planning, control, management and delivery) at active use of outsourcing of logistic services (technology 3PL) in the international market.

3. To open abroad the multipurpose logistic centers representing complexes of objects, providing management of the commodity, service and information streams, intended for management of advance of goods.

4. To accept the corresponding standard and legal base, in particular on interstate intermodal transportations, on document flow unification.

5. To create system of preparation of highly qualified specialists in the sphere 3PL and 4PL of technologies and transport services.

Thus, coordination of a state policy of development of domestic logistics, formation of the centralized institute of management by logistics system are necessary. The complex solution of noted tasks taking into account tendencies of development of the world market of logistic services will allow the companies of Kazakhstan to win steady positions in the international logistics. The developed logistic infrastructure of the country stimulates inflow of foreign investments, significant increase in volumes of transit transportations, formation of additional competitive benefits of the Kazakhstan participants of the market of transport and logistics services and significant growth in an export potential of the country.

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3.2.THE ECONOMIC ASSESSMENT OF AGRICULTURAL LAND USE[11]

Abstract. Theoretical and practical aspects of environmental and economic assessment of the use of agricultural land are researched in the article. The article determines generalized indicators for assessing of economic and environmental efficiency of agricultural land use in view of potential and actual soil fertility. The land use in Lugansk region is estimated, taking into account soil fertility species technique that makes possible to assess the overall level of the impact of economic, environmental and agronomic criteria of land use in agricultural production. The article substantiates practical significance of the methodology of assessment of environmental and economic efficiency of agricultural land use, which allows to identify the level of under-utilization of soil fertility in the region due to inappropriate level of agronomic farming.

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Keywords: ecological and economic assessment, estimation procedure, technical efficiency, quality index point, accounting and yield price of quality index point, potential and actual yield capacity.

Introduction

At present, the formation and determining the rate, scope and directions of development of the productive forces, rational structure of the material needs, effective tools, methods and technologies of their most complete satisfaction is not possible without taking into account environmental interests.

Therefore, we have to select the way of integration of environmental interests and the economy in all sectors of the national economy, including agriculture. This is a very difficult task. Two related problems - "satisfaction of the society needs" and "the possibility of the biosphere" - should be considered and resolved simultaneously with the development of optimal and environmentally safety options of interaction between nature, society and the agricultural production, environmental management in agriculture [4, c.180].

The solution of these problems, the development and adoption of effective management decisions of land use improvement, in our opinion, depends on the perfection of methods of evaluating environmental and economic efficiency of agricultural land use.

In recent years, the problem of economic efficiency and the rational use of agricultural land is studied increasingly in the world and in the domestic scientific literature. However, despite the considerable scientific achievements and practical experience in the area of evaluating of effectiveness of agricultural land use and protection of land resources, common criteria and approaches to the assessment have not been determined yet.

Unified criteria are the actual methodological basis of choice of evaluation indicator system. In contrast to the evaluation criteria, indicators – are measurable quantities and partial derivatives of the criteria. At the same time, only a system of indicators allows to characterize the criteria of environmental and economic assessments and effective influence on the complex process of sustainable reproduction of agricultural land.

Considering this, the system researches on the assessment of environmental and economic efficiency of use of agricultural land need of further intensification. Coordination of ecological and economic interests provide environmental, resource and reproductive nature of exploitation of agricultural land.

Taking into accounts all mentioned above, systemic research issues of assessment of ecological and economic effectiveness of agricultural lands usage needs further activation, because harmonization of economic interests acquires special significance in the context of environmental, resource and reproductive nature of exploitation of agricultural land.

Private property on land is geographically defined and legislated in Ukraine, but it has appropriate restrictions: owners and lessees should do business according to ecological safety of land use and improving of responsibility for rational use of land.

Despite the positive results obtained in the process of modern transformation of land relations, the economic potential of Ukraine and, in particular, of Lugansk region hasn't created favorable conditions for effective and rational land use, improving soil fertility and living standards growth of population. Thus, ecological and economic assessment of modern land use has a practical value from the point of view of providing steady rational land use development.

According to current research ecological and economic evaluation of the use of agricultural land must be based on the assessment of scale and intensity of the impact of economic activities on the land. After all, at this stage, aspiration of producer of agricultural products is a profits maximization that leads to unfavourable environmental effects.

Considering specifics of the mechanism of effective use of agricultural land, the evaluation of effectiveness must be determined by both economic and environmental efficiency. Therefore, the criteria for evaluation must be defined separately for each type of efficiency.

1. Latest research analysis

Value of land as a main means of agricultural production in a particular economic infrastructure, is primarily determined by its fertility, i.e. capability to provide plants with nutrients for their growth and development. Problems of efficient use of soil fertility were shown by K. Marx. Developing differential rent issues, he wrote that «nevertheless soil fertility is an objective soil property, economically it means ratio of current level of chemical and mechanical agricultural means and its' changes depends on development level». And next: «the development of Sciences and agronomy land changes fertility, because of the improvement of instruments of labor which make soil suitable for immediate usage». Hence, K. Marx made a well-known conclusion that «fertility is not the same as natural soil quality as seems to be: it is closely connected with modern social relations» [6].Therefore, soil fertility level depends not only on the properties obtained from the previous stages of the use of nature. Established fertility is a result of human activities in specific historical conditions. Its' complex integral natural and productive characteristics depends on the level of society's productive forces and its productive relations. The K. Marx' understanding of the main point of interaction between nature and society is a methodological basis of ecological and economic assessment of agricultural land.

2. Basics of the methodology environmental and economic evaluation of land

Land reform in Ukraine has lasted for twenty years, but this quite a long period of reform did not become a effected on sustainability of land use, and the current state of land relations can be considered as crisis that is hindering the development of productive forces.

The land market is provided through market transactions such as purchase and sale, lease, mortgage, exchange. Nowadays the purchase and sale of agricultural land forbiden. Citizens of Ukraine can buy and sell only areas that were in private ownership for personal subsidiary farming, gardening, gardens, cottages and garage constructions.

Authors determines the following problems of land market in Ukraine: the impossibility of buying and selling today due to the lack of demand,; many unsolved issues of land relations; lack of appropriate market infrastructure and accurate pricing to the land; the reluctance of the rural population to participate in the purchase and sale of land and existing prejudices about social and economic dangers of buying and selling land.

Part of the agricultural land market is provided through lease procedures. However, there a number of important issues remain unresolved:

- methodology for determining rental rates;
- issue of optimizing of timing of land rent etc.

Determination of ecological and economic efficiency is a complex and multilateral problem that requires research in various fields of science. The basis of its solution is the use of a complex procedure that combines economic, ecological and agronomic indices. Ecological and economic efficiency of agricultural land use shows ratio of production results to the used natural energy potential of natural resources and to the unrenewable energy including effects of anthropogenic interference. At the same time, ecological and economic efficiency indices should show complex and integral nature of the interrelation and interdependence of economic and ecological processes on the principle of feedback.

Finding out ecological and economic land use efficiency, we regard that applying the following definitions is expedient:

1. Economic efficiency of agricultural production is defined as the maximum output increase at the lowest labor and resources costs per land lot using suitable crop growing technologies. Integral index of economic function of soil is its biological productivity (yield) which is mainly determined not by its humus content but by the use of agro-technical, agro-chemical and other types of reclamation.

2. Ecological efficiency of land use means the formation of "human - agroecosystem" interrelations on the basis of objective ecological laws determining natural processes. Required condition is a maintenance and increase of soil fertility. Traditionally, the object of improving of soil quality is fertility, which in turn is

divided into: natural, artificial, potential and effective. Integral index characterizing ecological soil functions is its humus content which determines the water-physical (porosity, water permeability), physicochemical (chemical composition, etc.) and biological properties. The general qualitative condition of land lot is determined by quality index point.

3. The aim of ecological-economic index is an assessment of the state and changes in the results of economic activity carried out during human production activities and anthropogenic environmental changes.

In this case, the indicator provides an estimation of land use in terms of land lease, to balance the economic interests of land users and environmental requirements on the part of landowners.

Thus, on the basis of the above mentioned, we propose the following formula for the indicator, that is aimed to assess ecological and economic efficiency of use of agricultural lands in Lugansk region:

$$\mathbf{C} = \mathbf{(}\ \frac{\mathrm{B} * \mathrm{C\ point}}{\mathrm{C\ ef}} + \mathrm{Ac.}\mathbf{)} * \mathrm{Cc.}\mathbf{,}$$

where C - evaluation of the ecological-economic efficiency of use of land, UAH./he;

B - estimation of land in bonitet points;

C point - accounting value of the point, UAH.;

C ef - normative effectiveness coefficient of capital investments;

Ac. - value of fixed assets of industrial purpose per 1 he of agricultural land, UAH;

Cc. - the coefficient of priority of agriculture as an industry.

Accounting value of bonitet points (C point) is determined on the assumption of cropping patterns, type and kind of crop rotation, based on real regional market conditions of pricing.

$$\mathrm{C\ point} = \frac{\sum \mathrm{Yi} * \mathrm{PVi} * \mathrm{Pp.}}{100 * \mathrm{B}}\mathbf{,}$$

where C point - accounting price of points, UAH.

Yi - the yield capacity of crop, kg/he;

PVi - share of crop in the cropping pattern (crop rotation), %

Pp. - selling price of crop, UAH.

This technique allows us to estimate the aggregate level of effect of the economic, agronomic and environmental criteria of land use in agricultural production due to the fact that the use of bonitet points allows comparative

assessment of soil fertility expressed through the indicators (defined on a scale) their suitability for cultivation in agricultural crops (accounting for the environmental aspect).

The process of calculation of bonitet points class includes:

- The establishment of the characteristics and properties of the soil, which significantly affect on their fertility, using methods of statistical analysis;
- calculation of the average values of selected physical characteristics and soil properties;
- recalculation based on regression analysis of physical characteristic values and properties of soils depending on their impact on crop yields in relative values - points;
- calculation of the arithmetic mean point on a set of attributes and properties of varieties (groups) of soil;
- calculation of the total point of the soil by adjusting the arithmetic mean point on the negative properties, which reduce soil fertility.

The value of 1 bonitet point may is a ratio of yield capacity of crop to bonitet point of soil within lands by type of the soil. Thus, methodological approach which is proposed for calculating the value of bonitet point, provides the valuation of output of agricultural products by the average annual current prices and actual yields taking into account the structure of sowing under fixed quality land (quality score) at the time of evaluation.

The value of fixed assets for production purposes is determined taking into accounts the total area of agricultural lands in Lugansk region.

Normative effectiveness coefficient of capital investments is determined based on the investments payback period in the development of equal sized land plot with the same qualitative characteristics and same level of sufficient performance for another nonagricultural land plot that has been released in exchange.

The regulatory factor that is used in ecological-economic assessment, determines priority of use of agricultural land to other types of non-agricultural lands.

However, Taking into accounts practical importance of given procedure for determining ecological and economic efficiency we consider that it is necessary take into consideration the effective implementation of technological norms of production of agricultural crops, that affects the preservation of the quality of the land and characterizes the level of effective soil fertility. To do this, we consider it is worth to use a methodological approach, which is referred to as technical efficiency. Technical efficiency is a kind of effective method DEA (Data envelopment analysis), i.e., the analysis of the shell data.

In terms of the application of the DEA method in agricultural enterprises, productivity is defined as the ratio of the specific final product (products) to the input factor (factors), which is used for production. The application of this model in agriculture is a dynamic assessment of the effectiveness of agricultural technological process by a principle of calculation of the relevant technical indices (taking into

account agronomic aspect). Technical efficiency is defined as the quotient from dividing the sum of all outgoing parameters (in this case, yield capacity) to the sum of all incoming factors (the combination of farming practices used in growing crops).

Coefficient of priority of agriculture as a sector is determined by experts at the level of a business entity subject considering the following conditions:

• the supply level of citizens of agricultural products of local production;

• location of land lot concerning to highways, industrial enterprises;

• special importance of land as an experimental field, the scientific and experimental center;

• intensity and priority in the use of a particular lot of land at the enterprise level.

If we take into consideration that priority agricultural land in Lugansk region has no clear legal regulation, the calculation of its level is complicated by the methodology of the expert research that is a separate branch of study, the corresponding coefficient is taken as 1, and, therefore, the formula of ecological and economic efficiency of land use in the region takes the following form:

$$C = \left(\frac{B * C \text{ point}}{C \text{ t.ef.}} + Ac. \right),$$

where C t.ef. - the coefficient of technical efficiency of land resources.

3. Results of environmental and economic evaluation of land

The corresponding calculations based on agricultural land area of the Lugansk region were carried out in several stages:

1. The determination of the accounting value of bonitet point within the major crops of the Lugansk region: cereals (winter wheat, barley, maize), sunflower, potatoes and vegetables. The yield of these crops, their share and sales prices have been calculated as average for administrative districts of Lugansk region for 2008-2014 years.

2. Calculation of the coefficient of technical efficiency of land use, that envisage taking into account subjective factor of management on the ground, that is the level of intensity of crop production in modern conditions of farming (or the use of effective soil fertility) according to the formula:

$$\textit{Technical efficiency} = \frac{\textit{E the actual yield, price / he}}{\textit{E the cost of agricultural activities, UAH. / he}}$$

The level of use of effective soil fertility depends on plants varieties, farming practices, amounts of mineral fertilizers, economic conditions, etc. Therefore, effective fertility appears in economic or natural economic form, because is formed in

terms of specific human activities when substantial deviations of biological cycle of substances from natural phenomena in the direction of decrease and increase.

To calculate the efficiency cost index, natural units of productivity measurement should be changed into cost units: centner per hectare in UAH per hectare at the current price of one centner of the relevant crop. The calculations of direct production costs were carried out according to the traditional technology of cultivation of agricultural crops, which is dominant in Lugansk region.

Taking into account that different crops are changed in rotation, and their yield differs significantly among farms of region it is necessary to calculate the average weighted value of relevant indices by administrative districts of the region in terms of cereals, sunflower, potatoes and vegetables. The dynamics of technical efficiency of land use of Lugansk region as an average weighted value within crops duting 2008-2014 is characterized by the absence of clear trends and ranges within 47,45% - 100,85% depending on economic conditions of agricultural production (Chart 1).

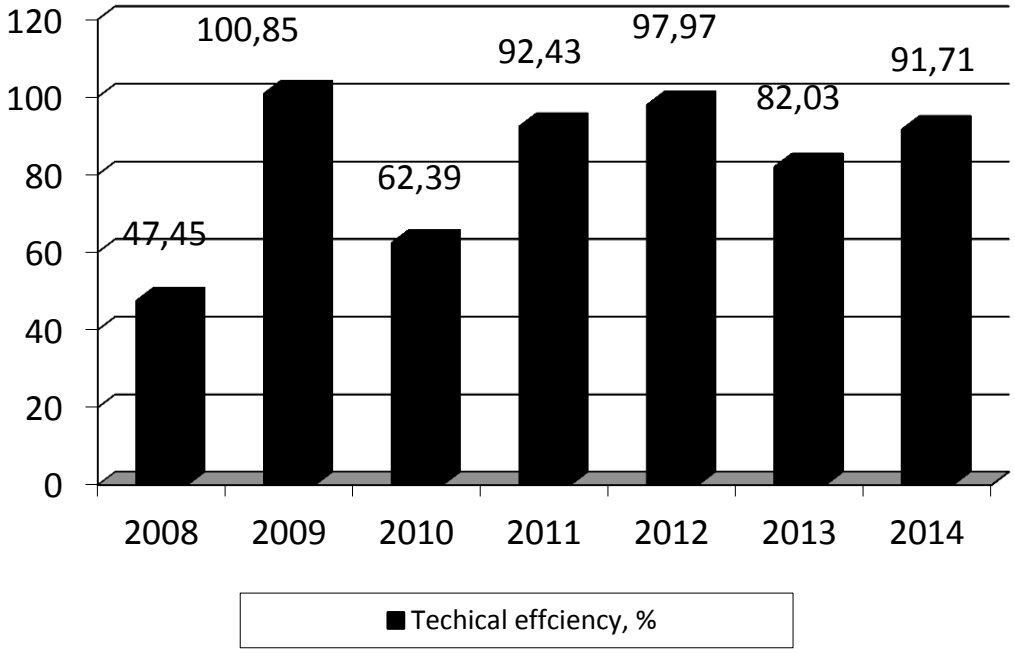

Figure 1- Dynamics of the level of technical efficiency of land use of Lugansk region for 2008-2014 (the actual level)

3. The determination of the value of fixed assets per one hectare of agricultural lands. The decrease of level of available funds of the region is caused by the reduction of technical and energy equipment status of the enterprises, the low level of investment activity in this branch.

4. Assessment of ecological and economic efficiency of land use in the region and calculations are presented in table 1.

The assessment of ecological and economic efficiency of the land use (soil fertility) in the region is determined within 3.6-11.2 thousands UAH per one hectare, which is a positive result and indicates a sufficient level of economic returns of land

with appropriate ecological load of land resource. The positive dynamics of calculated index characterizes the increase in level of rational land use in terms of rental use.

Table 1. Assessment of ecological and economic efficiency of land use of Lugansk region for 2008-2014 (effective fertility)

Years	Accounting value of bonitet point (C point)	Coefficient of technical efficiency (C t.ef.)	Value of fixed assets per one hectare, UAH.	Bonitet point	Assessment of ecological and economic efficiency, thousand UAH/he
2008	62555,133	0,4745	1499,24	54	7120,52
2009	66357,469	1,0084	1491,18		3554,95
2010	88308,94	0,6239	1479,66		7644,82
2011	92529,547	0,9243	1462,25		5407,28
2012	120205,55	0,9797	1481,22		6627,08
2013	169672,01	0,8203	1543,27		11170,98
2014	170775,83	0,9172	886,68		10055,29

Thus, given procedure made allows determining the actual level of ecological and economic efficiency of agricultural production based on the use of land as a means of production (based on the average annual yields and prices of agricultural products at the time of assessment). But it is necessary to determine objectively the potential capability of lands in Lugansk region to assess complexly the efficiency (the efficiency of use of potential soil fertility) and to compare with the previously calculated actual level.

The calculations of determining the level of efficiency of use of potential soil fertility of agricultural lands in Lugansk region were carried out as follows:

1. The potential productivity of agricultural lands is determined on basis of data on accounting crop yield using the formula:

$$Y = P * C\ point,$$

where Y –accounting crops yield**,** c/he;

P–assessment of land lot in quality index points;

C point - yield price of quality index point determined by dividing the maximum crop yield by the maximum point of assessment (100 points).

According to the previous research of scientists-agrarians of Lugansk National Agrarian University the price point of crop yield of the main agricultural crops of Lugansk region is 0.41c**.**, in particular [5]:

for winter wheat - 0,622c.;

for winter wheat - 0,48c.;
for barley - 0,37c.;
for maize grain – 0,81c.;
for sunflower seeds - 0,235c., etc.

2. The calculation of the coefficient of technical efficiency of land use, which provides the consideration of the objective factor of land management. Technical efficiency of the use of potential land fertility involves the ratio of potential crop yield (as a resource of land fertility with normative cultivation technologies established in the region) to the combination of agricultural activities in optimal technology conditions of their cultivation with the direct production costs per 1 hectare of sowing area. This index is a limit to land productivity in the region in terms of implementation of normative crop cultivation technologies. Thus, the index takes into consideration the objective factors of production.

$$\textit{Technical efficiency} = \frac{\Sigma \textit{ the resource of fertility, c/he}}{\Sigma \textit{ agricultural activities with normative cultivation technologies, UAH/he}}$$

The basis of calculation of direct costs in crop production are costs of implementation of traditional cultivation technology using technological maps for example of the State Experimental Training Farm of Lugansk National Agrarian University, which is a typical farm of Lugansk region.

According to the given calculations, the average weighted technical efficiency of land potential in Lugansk region is calculated (Chart 2).

Thus, these indexes indicate that in conditions of considerable rates of degradation of soils on swingeing majority of the ground characteristics, takes place a high level of efficiency of use of natural potential of soils in Lugansk region at an optimal (normative) technology of growing of products of crop husbandry and agrotechnics. This is an evidence that value of direct costs on production of goods at current prices in 2008-2014 years within the limits of 12,63-214,03% is covered by the sum of income in the conditions of realization of gross products of crop husbandry in sizes of natural return of land, and it characterizes the favorable conditions of agriculture in the region.

Chart 2. The dynamics of technical efficiency level of soils of Lugansk region in 2008-2014 (according normative indexes), %

Calculations of ecological-economic efficiency of use of potential fertility of soils at normative technology of agricultural culture growing in the region are presented in a table 2.

The efficiency of use of land resources according to their potential possibilities is determined by the level of profit within the limits of 6,2-18,3 thous. UAH/he and has fluctuation characteristics and general tendency to rise.

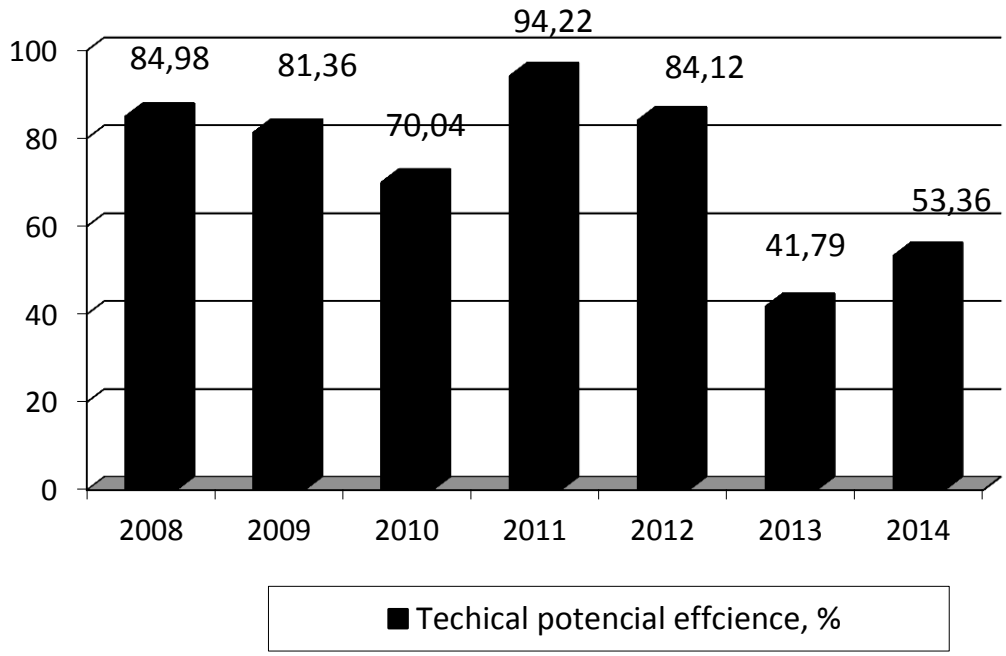

Table 2. Assessment of ecological-economic efficiency of land use in Lugansk region in 2008-2014 years (potential fertility)

Years	Accounting value of bonitet point (C point)	Coefficient of technical efficiency (C t. ef)	Value of capital assets per 1 he, UAH (Ac.)	Bonitet point	Assessment of ecological-economic efficiency, thous. UAH/he (C)
2008	97732,819	0,8498	1499,24	54	6211,869
2009	96431,246	0,8136	1491,18		6401,7951
2010	128800,58	0,7004	1479,66		9931,8497
2011	133075,95	0,9422	1462,25		7628,4009
2012	139623,27	0,8412	1481,22		8964,4587
2013	141979,37	0,4179	1543,27		18347,765
2014	150846,13	0,5336	886,68		15266,424

Comparison of actual and potential indexes is conducted in a table 3 and it allows to pass to the final stage of algorithm of assessment of level of ecological-economic efficiency of agricultural lands use in Lugansk region. To include a land plot to the relevant category the following scale of potential assessment is used:

more than 0,7 - agricultural lands are used effectively;

0,5-0,7 - middle level of efficiency of the use of agricultural lands;

0,3-0,5 - efficiency of the use of agricultural lands is lower then average;

less 0,3 - agricultural lands are used ineffectively .

Table 3. Comparative evaluation of efficiency of the use of agricultural lands in Lugansk region in 2008-2014 years

Years	Ecological-economic assessment, thous. UAH/he		Ratio	Difference, UAH/he
	actual	potential		
2008	7120,52	6211,87	1,146276	908,65
2009	3554,95	6401,8	0,555305	-2846,85
2010	7644,82	9931,85	0,769728	-2287,03
2011	5407,28	7628,4	0,708835	-2221,12
2012	6627,08	8964,46	0,739261	-2337,38
2013	11170,98	18347,77	0,608847	-7176,79
2014	10055,29	15266,42	0,658654	-5211,13

Conclusions

Consequently, the level of ecological-economic efficiency of use of land resources in Lugansk region is characterized as middle, except for 2008 year, when lands were used maximally effectively. However, comparison of actual and potential efficiency for the last 7 has a tendency to decline, and, since 2010 year it is on the middle level and demonstrates the decrease of culture of husbandry in the region on the whole.

The absolute difference of ecological-economic efficiency of the use of lands demonstrates losses growth from incomplete use of natural potential of earth at modern level of agriculture in the region, caused by poor technological provision of enterprises with necessary capital goods, disparity of prices on an agricultural production and material and technical resources of industrial origin. Also the decline of level of use of potential resource of land is a result of severe losses because of delays in harvest collection, the lack of fuel, unsatisfactory providing of enterprises in transport, difficulties with sale of produced production, lack of market regulation that contributed to development of inflationary processes and declined price of agricultural production, that limited possibilities for the extended reproduction and economic stability of enterprises.

In the conditions of the temporal use of agricultural lands on lease turms the problem of incomplete use of natural potential of soils or its «eating» escalates in the aspect of the long-term use of lands during incomplete indemnification of factors of soil fertility by users. The reliable method of increase of productivity of agriculture is a realization at national level of complex measures of structural alteration of land-use, perfection of the system of land protection, especially agricultural lands, on the basis of the self-weighted program of actions, that is based on generalization of results of scientific researches in area of economy, ecology and entitlement.

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3.3. ANALYSIS OF UNEMPLOYMENT RATE IN THE REPUBLIC OF KAZAKHSTAN [12]

Problem statement

The problem of the population unemployment and employment which features any stage of the economic development is one of the most important social and economic issues of society within the market conditions. In economy, the employment and unemployment reflect the labor market condition which, in its turn, characterizes the balance of workplaces supply and demand. In the social sphere, it is one of the main factors of the realization of the population labor potential, wherefore the unemployment problem is of constant urgency for the government regulatory agencies.

Review of recent publications

The questions of the labor market regulation and the population employment within the modern conditions were studied by Alpysbayeva S. (2002), Baigelova A. (2005), Shokomanov Y.K. (2007), Tatibekov B.L. (2007), Abdrazakova M. K. (2008), Koshanov A. (2012), Alimbayeva S. (2012) and others.

Many researchers point out that the actions for the effective use of labor capacity of the country and the achievement of its balanced application take an important place among urgent measures.

[12] Authors: S. A. Azylkanova, Zh.K. Zhanabayeva, Zh. B. Rakhmetulina

The purpose of the research is the development of economical and statistical approach to estimating and forecasting of the unemployment rate in the Republic of Kazakhstan.

Key research findings

As a result of the positive changes taking place in the real sector of the economy of the Republic of Kazakhstan, the labor market experienced noticeable shifts. The population employment started forming itself by the market principle – driven by the supply and demand.

During the first years of the transition period, the situation in the labor market was characterized by the decrease in the number of employed population. The beginning of economic recovery gave a new impulse in the sphere of the population employment. Since 1996, there has been observed the labor market stabilization, the reduction of production downtime by means of a fuller involvement into production of the workers who were on forced leaves or working part-time. Since 1999, there is a steady increase in the number of employed population and the decrease in unemployment rate noted. Table 1 presents the main indicators of the labor market of the Republic of Kazakhstan for the last five years.

Table 1. Indicators of the labor market of the Republic of Kazakhstan for the period of 2010-2014

Indicator name	2010	2011	2012	2013	2014	Changes for 5 years	
						absolute	relative, %
Gainfully employed population, thousand people	8610,7	8774,6	8981,9	9041,3	8962,0	351,3	4,1
Employed population, thousand people	8114,2	8301,6	8507,1	8570,6	8510,1	395,9	4,9
Wage labor, thousand people	5409,4	5581,4	5813,7	5949,7	6109,7	700,3	12,9
Self-employed population, thousand people	2704,8	2720,2	2693,4	2621,0	2400,4	-304,4	-11,3
Unemployed population, thousand people	496,5	473,0	474,8	470,7	451,9	-44,6	-9,0
Unemployment rate, %	5,8	5,4	5,3	5,2	5,0	-0,8	-13,8
Youth unemployment rate, % (at the age of 15-24)	5,2	4,6	3,9	3,9	3,8	-1,4	-26,9
Youth unemployment rate, % (at the age of 15-28)	6,6	6,3	5,4	5,5	4,2	-2,4	-36,4

It is calculated by the authors according to the data (Source: Statistical Yearbook of the Committee on Statistics of Kazakhstan, 2014).

Thus, for the period of 2010-2014 there was observed the growth of economic activity of the population by 4,1%, growth of employment by 4,9%, as well as the decrease in the unemployment rate from 5,8% to 5,0%, which evidences the low unemployment rate among the CIS countries. By comparison, according to the Eurostat agency, the unemployment in the countries of the European Union in 2014 reached 11,3% in general. The data vary depending on the countries. For example, if in countries of Eastern Europe the unemployment rate reached 18%, in Germany this indicator made lower than 5% by the end of 2014. Traditionally, Greece is keeping the worst position, where every fourth working-age citizen cannot find a job (Argandykov, 2015).

However, despite the above mentioned positive changes, the national labor market is not balanced. For the purpose of the dynamics analysis of the change tendencies of the unemployment rate in the Republic of Kazakhstan, its projected values are made with use of the mathematic economic modeling methods.

Regarding the methodology, the main tool of any forecast is the extrapolation design, enabling to forecast the growth rates of economic phenomena in the short term, proceeding from the tendencies developed in the previous period of time.

In order to create the unemployment rate forecast in Kazakhstan for the forthcoming period, we will use the data on the unemployment rate over the last 10 years presented in Table 2.

Table 2. Initial data for forecasting – the unemployment rate in the Republic of Kazakhstan for 2005-2014

Indicators	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Unemployment rate, %	8,1	7,8	7,3	6,6	6,6	5,8	5,4	5,3	5,2	5,0

It is calculated by the authors according to the data (Source: Statistical Yearbook of the Committee on Statistics of Kazakhstan, 2014).

We will produce the forecast of the unemployment rate by means of a moving average method. To do this, we should, first of all, determine the size of smoothing and calculate the moving average of the unemployment rate (Table 3).

We will calculate the predicted unemployment rate in 2015 based on the formula:

$$y_{t+1} = m_{i-1} + \frac{1}{n} * (y_t - y_{i-1}) \qquad (1)$$

Where $t+1$ is a forecast period;

t is a period preceding the forecast period;

y_{t+1} is a forecast indicator;

m_{t-1} is a moving average for the two periods prior to the forecast period;

n is a number of levels included in the smoothing interval;

y_t is an actual value of the studied phenomenon for the preceding period;

y_{t-1} is an actual value for the two periods prior to the forecast period.

$$y_{2015} = 5.17 + \frac{1}{3} * (5 - 5.2) = 5.1\%$$

Table 3. The determination of the unemployment rate moving averages, developed by the authors

Year	Unemployment rate in the region y_t	Moving average m	Average relative error calculation $\lvert y_{(t)} - y^{i}{}_{(t)} \rvert \, y_{(t)} * 100$
2005	8,1	-	
2006	7,8	7,73	0,85
2007	7,3	7,23	0,91
2008	6,6	6,83	3,54
2009	6,6	6,33	4,04
2010	5,8	5,93	2,30
2011	5,4	5,50	1,85
2012	5,3	5,30	0,00
2013	5,2	5,17	0,64
2014	5	-	-
Total			14,14
2015	5,10		
2016	5,03		
2017	5,02		

In order to determine the unemployment rate of the population in 2016 we will calculate a moving average for 2014:

$$m = \frac{5.2 + 5 + 5.1}{3} = 5.1\%$$

We will determine the unemployment rate of the population in 2016 by the formula (1):

$$y_{2016} = 5.1 + \frac{1}{3} * (5.1 - 5) = 5.03\%$$

We will calculate a moving average for 2015:

$$m = \frac{5 + 5.1 + 5.03}{3} = 5.04\%$$

Thus, the unemployment rate of the population in 2017 according to the formula (1) will make:

$$y_{2017} = 5.04 + \frac{1}{3} * (5.03 - 5.1) = 5.02\%$$

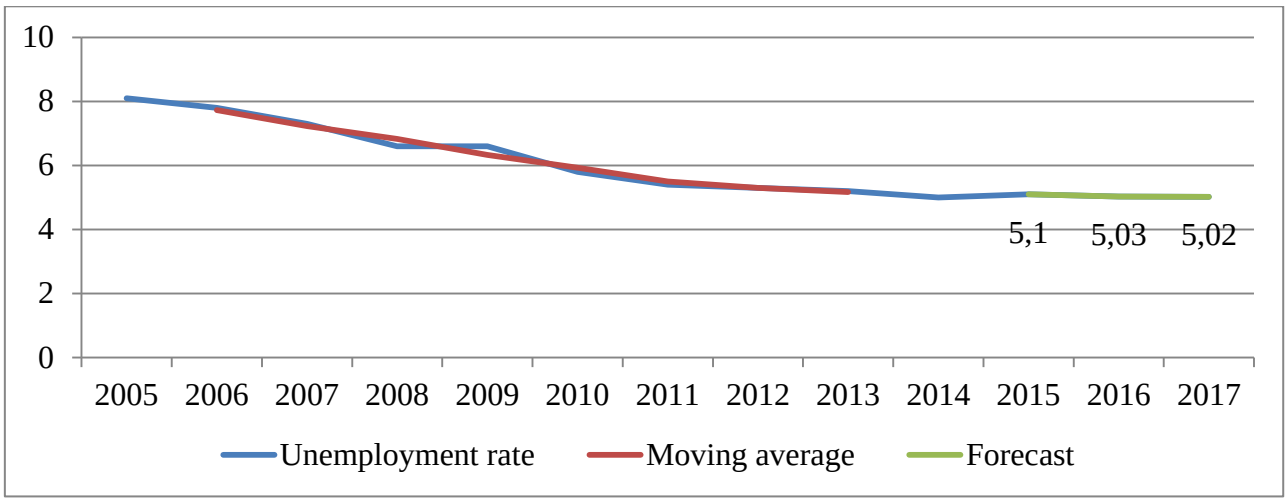

Figure 1- The unemployment rate forecast in the Republic of Kazakhstan based on the moving average calculation method

As it is seen from the data of Figure 1, according to the forecast calculated by the authors by means of a moving average method, an average unemployment rate in the Republic of Kazakhstan will remain at the level of 5,1-5,02 % in 2015-2017 with a pronounced tendency to decrease.

In order to estimate the accuracy of the executed forecast, we will calculate an average relative error basing on a formula:

$$e = \frac{1}{n} * \sum_{i=1}^{n} \left[\frac{| y_{(t)} - y^{i}{}_{(t)} |}{y_{(t)}} * 100 \right] \qquad (2)$$

Therefore, $e = 14.14/8 = 1.76$

Table 4. Interpretation of the values of an average relative error for the forecasts accuracy estimation

e, %	Interpretation
<10	High forecast accuracy
10-20	Good accuracy
20-50	Satisfactory accuracy
>50	Unsatisfactory accuracy

It s based on the source (Malyhin, 1998)

As far as the value of the calculated error does not exceed 10% (according to Table 4), the accuracy of the forecast can be estimated as high.

For the calculation of the unemployment forecast by the exponential smoothing method, we use the formula:

$$U_{t+1} = a * y_t + (1 - a) * U_t \qquad (3)$$

Where t is a period preceding the forecast period;

$_{t+1}$ is a forecast period;

U_{t+1} is a forecast indicator;

a is a smoothing parameter;

y_t is an actual value of the studied phenomenon for the preceding period;

U_t is an exponentially weighed average for the period preceding the forecast period.

We will determine the parameter by the formula:

$$a = \frac{2}{n+1} \qquad (4)$$

Where n is a number of observations included in a smoothing interval.

In our case, it is:

$$a = \frac{2}{10+1} = 0.18$$

We will determine the value U_0 – an exponentially weighed average of the initial by an arithmetic average formula by means of two methods:

1) $U_0 = \frac{8.1+7.8+7.3+6.6+6.6+5.8+5.4+5.3+5.2+5}{10} = 6.31$

2) (we accept the first value of the forecast base) $U_0 = 8.1$

We will carry out an exponential smoothing (Table 5).

Table 5. Exponential smoothing of the population of the Republic of Kazakhstan

Period	Unemployment rate, % y_t	Exponentially weighted average U_t		Average relative error calculation	
		method 1	method 2	method 1	method 2
2005	8,1	6,31	8,1	22,10	0
2006	7,8	6,63	8,10	14,97	3,85
2007	7,3	6,84	8,05	6,27	10,22
2008	6,6	6,92	7,91	4,92	19,87
2009	6,6	6,87	7,68	4,04	16,30
2010	5,8	6,82	7,48	17,56	29,00
2011	5,4	6,64	7,18	22,87	32,95
2012	5,3	6,41	6,86	21,00	29,41
2013	5,2	6,21	6,58	19,47	26,51
2014	5	6,03	6,33	20,60	26,61
Total	63,1	65,7	74,3	153,8	194,7
Forecast 2015		5,84	6,09		
2016		5,87	6,13		

It is calculated by authors

$U_{2005} = 8.1*0.18 + (1-0.18)*6.31 = 6.63\%$ method 1

$U_{2006} = 7.8*0.18 + (1-0.18)*6.63 = 6.84\%$ method 1, etc.

$U_{2005} = 8.1*0.18 + (1-0.18)*8.1 = 8.1\%$ method 2

$U_{2006} = 7.8*0.18 + (1-0.18)*8.1 = 8.05\%$ method 2, etc.

We will determine the forecast values of the population unemployment by the formula (3):

- 2015:

$U_{2015} = 5*0.18 + (1-0.18)*6.03 = 5.84\%$ method 1

$U_{2015} = 5*0.18 + (1-0.18)*6.33 = 6.09\%$ method 2

The average relative error is:

$e = 153.8/10 = 15.38\%$ (method 1)

$e = 194.7/10 = 19.5\%$ (method 2)

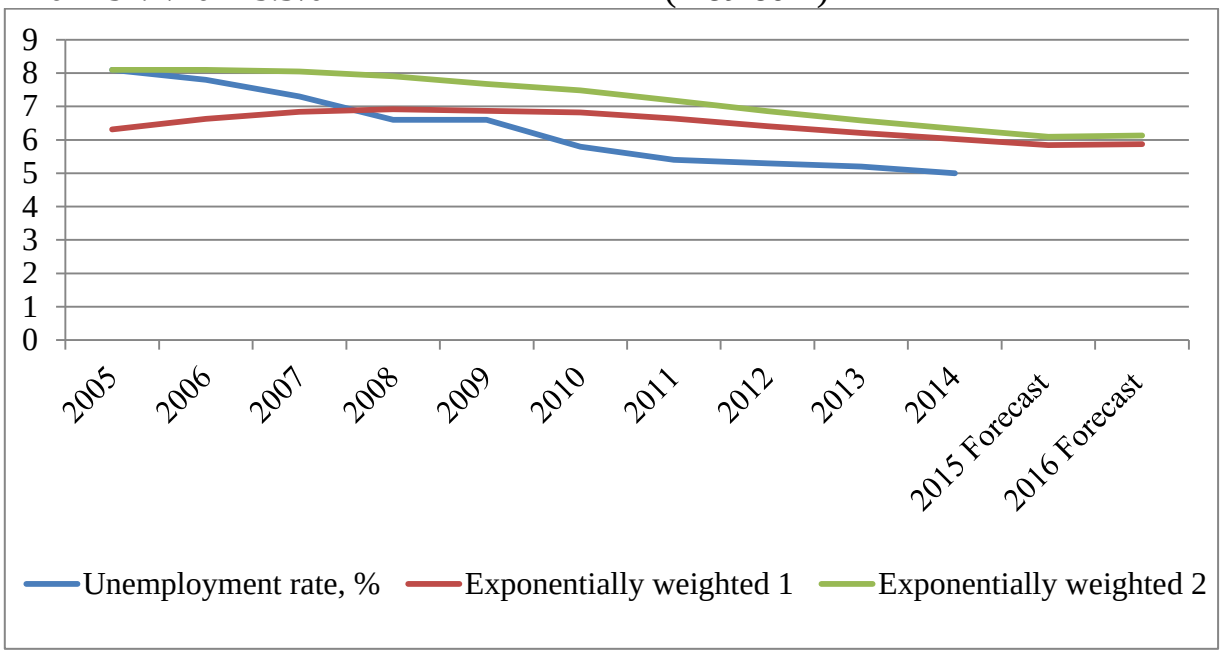

Figure 2- Graph of the exponential smoothing calculation method

Conclusions

As it is seen from the presented data, the unemployment rate in Kazakhstan in 2015 will be at the level of 5,84-6,09%, in 2016 – at the level of 5,87-6,13%. By the estimates of the International Labor Organization, the unemployment rate within 3,5-6,5% is acceptable. This indicator exceeded signifies the beginning of the difficult period for both state and business.

The calculation of the forecast value of unemployment rate of the population of Kazakhstan produced by means of the moving average calculation method is the most

accurate. The average relative error made 1,76%, which evidences the high accuracy of the forecast and efficiency of this forecast method.

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3.4. THE RELATIONSHIP OF REAL ESTATE MARKET AND TYPES OF HOUSING[13]

In today's world real estate market is the most difficult industrial market with internal structure inherent to only this market. Difference of real estate market from other markets, real estate market has its own characteristics as a single trade item, a complex financial system, a limited number of buyers and sellers, and the formation on the basis of demand and supply prices. The uniqueness of the product in the real

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estate market follows from the peculiar characteristics of property, making it different from other products. In this section are the characteristics of housing, adopted in the world practice the housing sector.

Market research residential real estate, in particular, the formation and development of market pricing dedicated to the works of Russian and foreign scientists-economists like A.N. Assaul [1], A. O'Sullivan [2], V.Z. Chernyak [3], D.V. Bulayenko [4], G.A. Bryukhanova [5], V.A. Bukachev [6], S.K. Diyarov [7], L.B. Kulumbetova [8], Zh.M. Shaekina, R. Shokan [9], U.Zh. Shalbolova [10], S. Bolatkyzy [11] and others.

At present, the main base of the goods in the real estate market is housing which is patchy in the sense that each house has a different set of characteristics, in other words, the house has different parameters of quality and conveniences. There are two types of housing characteristics: the characteristics of the property and location characteristics in which it is located.

Accommodation varies in size (living space in square meters) and layout (layout of the rooms inside the dwelling). It also varies in quality and utility systems (heating, air conditioning, plumbing, electrical). Other differences relate to interior design (type of flooring, windows, and closet) and structural strength (durability of the foundation and the roof). Shortly, each house has different set of characteristics such as size, layout, municipal convenience, interior design and structural strength [12].

Since the housing motionless, one of the components of the complex characteristics of the property is its location. The buyer of the property acquires the set of characteristics with a housing itself. One of the characteristics of the site is its availability; sites differ in the degree of accessibility of places of work, commerce and leisure. Another feature is the presence of local public services: in different regions, cities and towns operates dozens of local authorities, each of which establishes different forms of payment for services, and provides a different set of public services (schools, social facilities, health care). Another feature is the quality of the environment: sites differences on air quality and noise (from cars, trucks, aircraft and industrial enterprises). The last location feature of the house is the appearance of the neighborhood (the appearance of the neighboring houses and land). In conclusion, we can say that the house is "consumed" with the residential area, so a residential complex takes into account several characteristics of the site, including the availability of different services, public services, and the quality of the environment and neighborhood characteristics.

What determines the equilibrium price of housing? The basis of the formation of housing prices based on the concept, according to which the housing consists of a set of individual elements, and each of them has its own implicit price. The market price of housing is the sum of the prices of the individual elements.

For more affordable concepts, consider the housing market where homes differ in five paragraphs: the availability of employment in the city center, the number of

bedrooms, the condition of the roof, ambient air quality and the quality of local schools. Market research can provide the following information (all figures are conventionally):

- *basic price*: the average house has three bedrooms, it is located five meters from the city center, and the roof serves about six years. The price of this house is 100 thousand dollars;
- *price availability*: house price falls to 1 thousand dollars for each additional kilometer from the city center; at more affordable homes a higher price;
- *price of the bedrooms*: house price increased by 10 thousand dollars for each additional bedroom; on the large area above the price of the house. In developed countries, the numbers of rooms' records are maintained on the number of bedrooms;
- *roof price*: house price is decreases by $ 200 for each additional year of life of the roof, older roof means that it will have to be replaced quickly, so the market price is below the house;
- *air quality price*: the house price is decreases by $ 500 for each additional unit of air pollution; in areas with relatively clean air house prices are above;
- *price for schools*: the price of homes increases by $ 600 for each standard unit growth in the quality of local elementary school (as measured by average test scores); houses in areas with better schools are more expensive [13].

How do people make a choice of several buildings, each of which has a different set of characteristics? The buyer should find a home with the best combination of parameters at the lowest price. Most consumers do not have access to the results of its study of hedonic housing market. Looking after their self for a house, they gather their own information about the implicit price location, size and design characteristics. In the end, the buyer stops at the combination that maximizes the utility for him in view of financial constraints.

The buyer chooses a house that provides the best acceptable combination of parameters. Consider the housing market, where homes differ in two respects: in size (living area in square meters) and quality (floors, walls, roof). Fig. 1 shows a selection of houses of three different buyers.

The budget line in Figure 1 shows the combination of size and quality, which are fully exhaust the buyer's funds allocated for housing. Line *AB* is a budget line for the buyer with an average income of *S* and *L*, and the line *CD* – this is a budget line of a buyer with high-income *H*. The position limit curve is determined by means of a volume buyer of funds allocated for housing: the more money, the greater the range of acceptable size and quality combinations.

By choosing home buyer taking into account the size and quality, which reflects his subjective compromise (which can be seen in his indifference curves), the market compromise (which is a reflection of the slope of the budget line) and the buyer's income (which determines the position of the budget line). Buyers *S* and *L* has different tastes relation to the house: *L* selects large unequipped house, while the *S* –

small, high-quality accommodation. The buyer with the highest income (*H*) selects a large, high-quality accommodation.

Indifference curves in Fig. 1 shows various combinations of size and quality, giving the same level of utility for the buyer. Given three indifference curves – one for each buyers *S*, *H* and *L*. At the slope of the indifference curves is negative, reflecting a subjective trade-off between customer size and quality: the lower the level of quality customer require a larger housing to have the same level of utility.

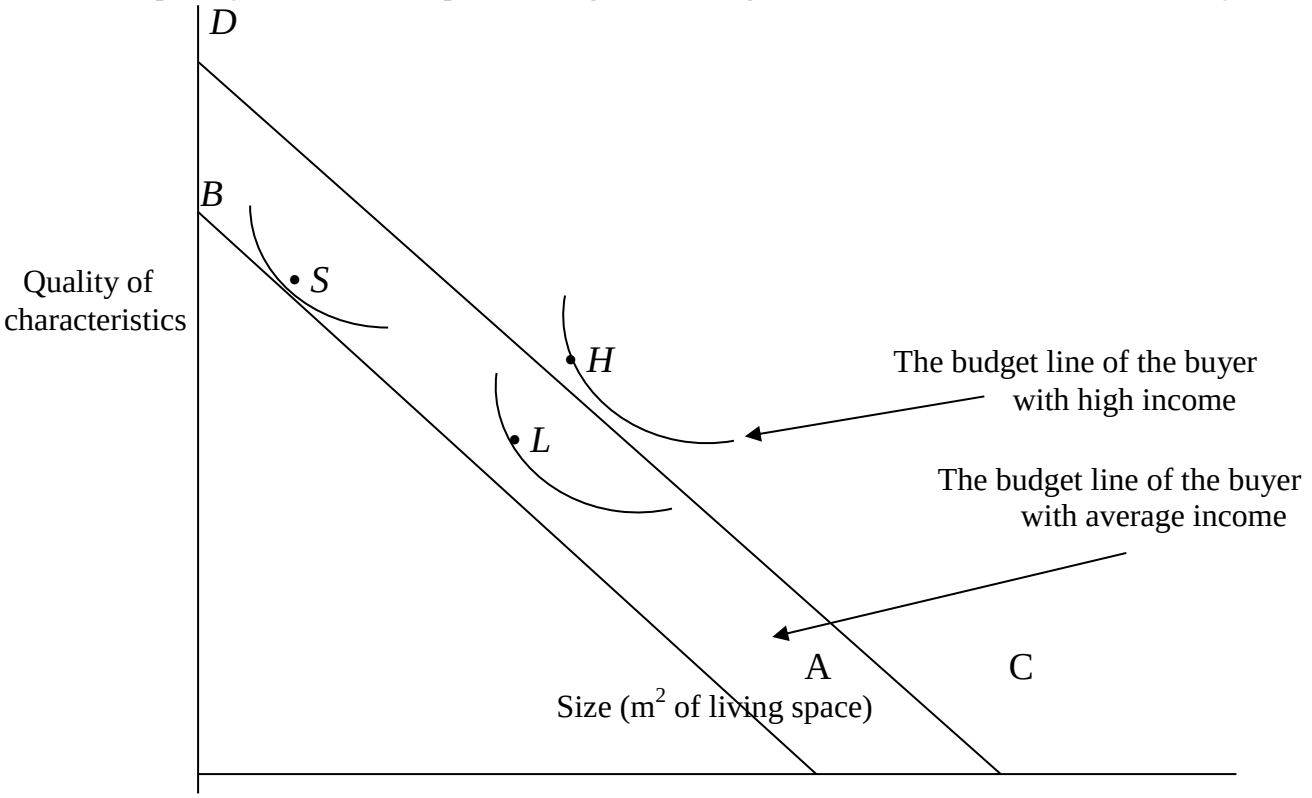

Figure 1- Preferences of customers with different incomes when choosing a house

Choice of house reflects the preferences and income of the buyer. Considering to the shape of their indifference curves (buyer *L* with an average income) selects large, low-quality house. Despite the fact that the buyer *S* has the same income and resource limit on the house as in *L*, *S* selects house are smaller, but higher quality. His choice is quite rational, because *S* prefers quality that derives from the shape of its indifference curve. The buyer *H* has high income and more funds allocated for housing, so he chooses a large, high-quality house. The buyer with the highest income is faced with the same financial trade-off between size and quality (the same opportunity cost), but he can spend more money for the size and quality [14].

Housing markets are generally subject to segmentation. The heterogeneity of housing means that the urban housing market consists of a number of smaller markets. The housing market is divided by the size, location and quality. For example, some customers are looking for a small houses, and others – a large,

accordingly, there are small and large housing markets. Similarly, some customers are looking for a house, which is convenient to work in the city center, while others are looking for houses in areas with high-quality schools. And finally, some residents look for new housing, fully equipped with modern conveniences, while others – the old house, where is still alive the spirit of antiquity.

Despite the fact that the housing market is divided into submarkets, the latter are interconnected, since the choice of housing consumers are showing some flexibility. As the relative price of a house with three bedrooms, some residents are switched to the house with two bedrooms. Just as the growth of prices for old houses as compared with modern home prices, some buyers switch to the new housing market. In other words, the houses from different submarkets are not absolutely substitute, however, in response to changes in the relative prices of different types of housing buyers move from one submarket to another.

The choice of housing is influenced also by external factors. The number of parameters of service and quality available in a particular building, depending not only on the characteristics of the property, but also on the characteristics of the neighborhood in which it resides. When one homeowner improves the appearance of his home by his color or floral decorations, micro district becomes more pleasant place to live, so the market values of surrounding houses are increasing. This reflects the external effect (neighborhood effect): positive changes in the external appearance of the one house turn into spin-offs (increase in market value) of surrounding houses. With all the certainty of the presence of external effects there are still a number of questions about their magnitude and territorial scale.

To evaluate the magnitude of external effects economists use the hedonic approach (see Kresin, David, Jackson, 1967. Kane, Quigley, 1975) [15]. In Table 1, an increase of one standard unit of quality of neighboring houses leads to an increase in the monthly rents of $ 1.86 and the growth of the market value of $ 777. Similarly, the improvement of the other houses in the residential area leads to an increase in rents and market value.

The results of hedonic studies suggest that external effects are highly localized character: spin-off benefits from the positive changes in the appearance of a home are limited to houses, located a few hundred feet from the house.

A house price also depends on its strength. Accommodation has a longer life than many other products. If the house has good care, it can last for 100 years or more. Despite the fact that over time houses are break down, this process is relatively slow. The service life of the house has three consequences for the housing market. First, by spending money on repairs and maintenance of the house, the homeowner can control the pace of its physical deterioration. Secondly, a large number of old houses come every year on the market. According to the most common estimates of new construction in the year ranges from 2 to 3% of the total housing stock. Over the decade, the housing stock is replenished 20-30% of new houses, so about 70-80% of households live in houses that, at least, 10 years. The final conclusion is that the

supply of housing – is a relatively inelastic process: the market is dominated by a certain number of old houses, so the change in prices caused relatively little change in the amount of the proposed housing.

Table 1. Changes in the prices of houses as a result of the growth characteristics of houses per standard unit: hedonic housing market study in St. Louis

Characteristic	Rental housing market: the growth of the monthly rent (US $)	The market of private houses: the growth of the market value (US $)
Quality of the house		
interior	1,31	818
central heating	4,44	-
life time	-0,29	-100
House size		
number of bedrooms	22,63	1453
number of bathrooms	9,07	769
Plot features		
external quality of the neighboring houses	1,86	777
external quality houses in a residential area	3,71	419
The distance from the CBD (miles)	-0,30	-354

Source: John F. Kain and John M. Quigley, Housing Markets and Racial Discrimination: A Microeconomic Analysis (New York: National Bureau of Economic Research, 1975) [15].

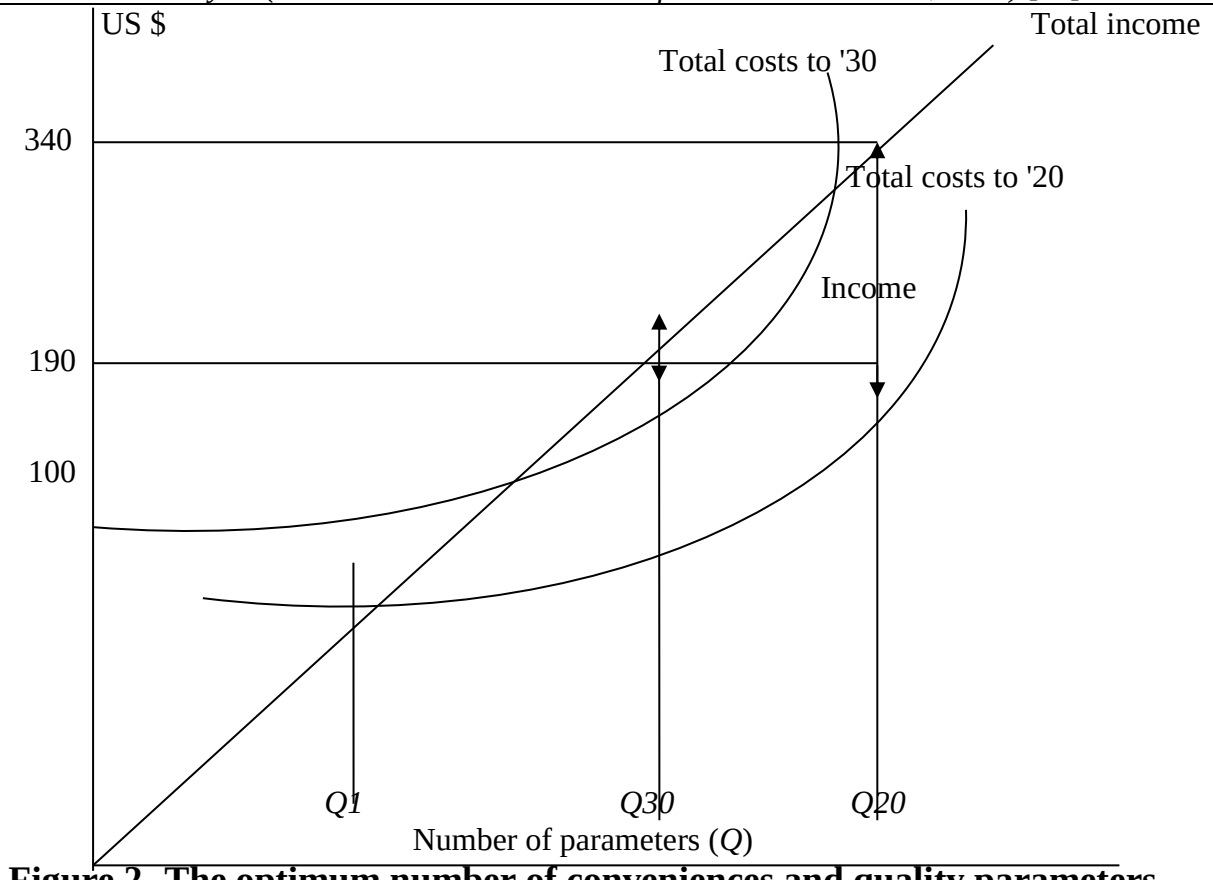

Figure 2- The optimum number of conveniences and quality parameters

The owner may extend the period of aging and physical destruction of the house, if he will spend time and money on its repair and maintenance (Fig. 2). Homeowners have an incentive to maintain and repair their property, because this work increases the number of conveniences and quality parameters (Q), for which the homeowner may be affected by the repair of windows and roofs, maintenance heating and plumbing systems, as well as house painting. The curve of the total cost represents the amount of permanent (independent of Q) and variable costs. The fixed costs include the costs of property management (pay for utilities and maintenance of territory, taxes). Variable costs include the costs to repairs and other incidental costs. Cost curve has a positive slope, because with increasing Q variable costs increase, when a large amount Q to keep the house more. At the bottom the cost curve has a convex shape which shows a consequence of the declining revenue from maintenance costs: by increasing Q to contain the house becomes more and more expensive.

Direct in Fig. 2 shows the relationship between total income (rent per month) and Q. It may be assumed that the unit price of Q is constant: housing, where in twice the number of parameters of conveniences and quality, requires twice the rents.

Profit is the difference between total revenue and total costs. On the 20th year of house life (20 years after it was built) the homeowner has the lowest of the two cost curves. Profit is a positive value greater than Q_1, reaching its maximum level at Q_{20}. With this setting of Q the profit curve has the same slope as the curve of costs: the marginal benefit (change of total revenue per unit change Q) equals marginal cost (the change of the total costs per unit of Q changes). So focused on maximum profit homeowner chooses to Q_{20} parameters of conveniences and quality [16].

The optimum number of parameters changes over time due to changes in variable costs or changes in demand:

- *changes in variable costs*: as a house ages, maintaining it at this level of quality is becoming more expensive. Fig. 2, between 20-30 years, the fixed costs do not change, and maintenance and repair costs increase, resulting in a total cost curve shifts upwards. By the 30th year, the optimal number of parameters is reduced from Q_{20} to Q_{30} and the homeowner's income falls;

- *changes in the level of demand*: suppose that housing demand in a particular area falls, causing a decrease in the equilibrium price of house rent. Fig. 2 curve of total income "flex" down (the central part is displaced from its original position), reducing the profit associated with each Q. As the "flexing" earnings optimal function Q value decreases.

The optimal number of parameters of conveniences and quality of housing is Q at which profit (total revenue minus total costs) reaches its maximum value. On the 20th year of service of house life profit has a maximum value Q_{20}. Aging increases the home maintenance costs, shifting the cost curve up and reducing the optimal value of Q.

What happens when the profits from the leased house becomes negative? Suppose that due to changes in costs or demand curve of the total cost is above the

curve of the income for all values of *Q*. It is obvious that the rental housing does not make any profit, leaving the homeowner three options: to remodel, preserve and give up the property:

- the house can be remodeled in order to use it not for the shelter, and take, for example, an office, a warehouse and a closed parking lot. Remodeling brings sufficient gain to offset the cost to remodel. If remodel need to demolish the house, and in its place build a new building, the cost of remodel will be relatively high and it will be practically impossible;

- house can be closed, and for a time to remove from the market. Conservation embodiment is advantageous in that case if the two conditions are satisfied. Firstly, if the homeowner believes that in the near future rents will rise again and the profit will be positive. Secondly, if the costs that the homeowner carries on the maintenance of the building (the opportunity cost of storing their money in housing rather than in a bank account), also relatively small and the costs associated with the expectation of growth in rents, relatively small;

- the owner may abandon the house, just throwing it. Failure is advantageous in that case if the alternative use of (as a retailer, for commercial or industrial purposes) provides enough income to cover the costs associated with the transfer of property from residential to non-residential use. If the cost to redevelop high enough, then the market value of the property is equal to zero, so there is no reason to retain the ownership of the land. Also the house can be seen in the failure of depressed regions and cities [17].

Pausing intended use is the result of three changes that reduce the profitability of rental housing. With regard to market demand, the reduction in the average income or population decline reduces the demand for housing in certain areas. As rents in the housing market are reduced, "flex" curve down comprehensive income, reducing profits. On the supply side, the growth of rental housing supply reduces the rents and profits. Finally, the aging of the home increase the cost of its maintenance and repair reduces the profit for the given total revenue curve, increasing the probability of change in the nature or the use of non-property [18].

Durability of housing is also important for the market supply curve. Consider the response to growth in demand for housing. In the short term housing supply stays unchanged, so an increase in demand leads to an increase in the equilibrium price. In the long term housing supply providers meet the growth of the housing by increasing the market price. In this case, you must answer the following questions: how to grow an offer and how soon it will happen?

Notes three types of offer changes in response to the price increase:

- *construction of new housing*: as prices rise and increase the profitability of housing is developed for new housing. Most of the new houses being built on empty land in the suburbs;

- *slowing down the destruction of the exempt homes:* as house price growth benefits from maintenance of houses is increasing. Homeowners spend more on

maintenance and repairs, thus slowing the pace of their destruction and reducing the number of houses disposed of used housing;

- *reconstruction of the exempt homes*: some homeowners improve their houses, increasing the number of parameters of conveniences and quality [19].

How flexible the offer to exempt property? Since the house destroyed rather slowly over time, slowing the destruction has only a marginal impact on the housing market. Despite the fact that the rise in prices slows down the aging process, the last thing to note, first of all, is quite slow. In addition, the reconstruction extremely costly, therefore, to make the restructuring of the quality required to spend a lot of money. For these two reasons, the supply of housing is very inelastic, if we talk about a relatively long period of time. In other words, changes in the nature of housing supply occur slowly enough: suppliers need considerable time before they are able to respond to growth in demand for housing. And before that, housing prices remain relatively high.

The same argument applies equally to reduce the demand for housing and to the following for this drop in market prices. Falling prices reduce incentives for maintenance, in this connection, houses are destroyed faster and more apartment houses displays from the market. Even the most rapid degradation was a relatively slow process, so for long periods of time reduce the number of offered housing is very small. Despite the fact that the houses can be reconstructed and used for other purposes, the high cost of holding back the implementation of the reconstruction of the options. Since the price drop leads to relatively small changes in the greater part of the market for a long period offer is relatively inelastic nature. Therefore, for a long time housing prices will remain relatively stable.

What is the elasticity of supply of housing in the price? Elasticity of supply is difficult to calculate, because it is difficult to measure the number of conveniences and quality parameters. The supply of housing studies faced with a number of statistical properties of the problem, so to obtained results should be treated with extreme caution. Generally, the values of the elasticity of supply freed housing in the range of 0.20-0.30. In other words, a 10% increase in the market price leads to an increase in supply of housing in the liberated market by 2-3%. For 10 years, new construction housing increases by only 30%, so their evaluation relates to 70% of the housing stock by 10-year period. If for a long period of stability of the national economy elasticity of rental housing supply may be at the level of 0.30-0.70 that allows speculating that housing supply is relatively inelastic in nature for relatively long periods.

Conclusion

Thus, the state of supply and demand in the housing market depends on the quality characteristics and location of the property, put up on the market, as well as the stability of the national economy. Observations in recent years show that the

growth of social and economic situation of the country, as a rule, proceeded by an increase in demand in the housing market and consequently, a change in the pricing policy. On the contrary, the first decline in the national economic development responds to the housing market.

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3.5. SMALL AND MEDIUM ENTREPRENEURSHIP AS A BASIS FOR SUCCESSFUL ECONOMIC DEVELOPMENT OF KAZAKHSTAN[14]

Abstract. The development of small business in the Republic since the early days of economic reform is a priority of economic policy. Entrepreneurial class acts an essential attribute of a market economy, an independent economic actors.

SME development is an important resource for economic modernization of Kazakhstan. Such structures do not require upfront investment volume, are the guarantors of social stability and irreversibility of modernization processes by involving the general public in industrial and innovative sector. But this is problematic sphere that requires financial support, optimal taxation, and public administration.

Today, small businesses play a key role in the development of any economy. Despite the attention given to our country and small and medium business, its impact on the socio-economic development is still not noticeable. Yet today in our country are beginning to justify all the efforts that are aimed at the systematic and widespread development of entrepreneurship.

Key words: development, small and medium business, market economy, state, independent subjects, business.

Introduction

Kazakhstan is located on the joint of two continents – Europe and Asia. Kazakhstan is geographically the 9th largest country in the world and the proportion of agricultural land is 34.3%. In the area of lands the republic takes the ninth place in the world, ceding only to Russia, China, the USA, Argentina, Brazil, Canada, India and Australia; the second place on the territory among CIS countries. The territory of the country occupies 2724,9 thousand км^2, and reaches from the lower river Volga in the west – to the mountains Altai in the east and from the mountains Zailijsky Alatau of the Northern Tien-Shan in the south – to the Western-Siberian lowland in the north. Nowadays the system of the administrative-territorial structure of the republic includes 14 regions, 2 cities of republican importance, 177 administrative areas, 87 cities, 30 settlements and 6693 rural settlements.

Population size for 01.01.2016 (according to the current data) – 17670,6 thousand people. Population density – 6,5 people per 1 km^2 (Table 1).

[14] Authors: B.Bekbenbetova, B. Turebekova

Kazakhstan, as a former member of the Soviet Union, is actively reforming all spheres of economic life. Over the twenty-fifth anniversary of its sovereignty the Republic of Kazakhstan has achieved considerable success that made it possible to deem it as one of the most successful among CIS countries. Dynamic economic development over the period of independence enabled to improve in essence the social standard of living.

Table 1. Main demographic indicators of Kazakhstan for 2013-2015 y.y.

Indicators	2013	2014	2015
Population size, by the end of year, thsd. people, including:	17 160,8	17 417,7	17 670,6
urban	9 433,5	9 868,6	10 066,6
rural	7 727,3	7 549,1	7 604,0
Total population size at the age: younger than able – bodied age	4458,4	4631,6	5019,4
able – bodied age	11554,0	11598,5	10747,4
older than able – bodied age	1148,4	1187,6	1903,8
Source: Statistics agency of Kazakhstan (2016) [1]			

Per capita GDP, since 1993, has a stable trend to growth, if in 1993 this indicator made 692,2 US dollars then in 2003 it reached 2068,1 US dollars. For the period from 2004 to 2009 per capita GDP increased more than twofold. Although in 2009 per capita GDP was lower than in 2008 as a result of detrimental effect of world crisis on nation's economy, in 2010 its rate pierced its pre-crisis level and made 8957,2 US dollars, and according to the results of 2015 – 10,5 thousand US dollars [1].

The Gross Domestic Product (GDP) in Kazakhstan was worth 184.36 billion US dollars in 2015 (Table 2).

Table 2. Gross domestic product of Kazakhstan for 2013-2015 y.y.

Indicators	2013	2014	2015
Gross domestic product, mln dollars of USA	236 633,3	221 417,7	184 387,0
Index of physical volume of gross domestic product, in percent of previous year	106,0	104,2	101,2
Gross domestic product per capita, dollars of USA	13 890,8	12 806,7	10 509,9
Gross domestic product per capita, index of physical volume, in percent of previous year	104,5	102,7	99,7
Investment to the Fixed capital, mln tenge	6 072 687	6 591 482	7 024 709
Gross expenses for research and development works, mln tenge	73 949,9	73 555,7	86 572,9
Source: Statistics agency of Kazakhstan (2016) [1]			

The GDP value of Kazakhstan represents 0.30 percent of the world economy. GDP in Kazakhstan averaged 79.80 USD mln. dollars 1990 until 2015 year, reaching

an all time high of 236 633 USD mln. dollars in 2013 and a record low of 11 404.3 USD mln. dollars in 1993 (Figure 1).

Weak petroleum prices and the continued impact of currency depreciation on import prices cut growth in Kazakhstan to 0.1%, sharply accelerated inflation in the first half of 2016, and doubled the current account deficit from the same period in 2015.

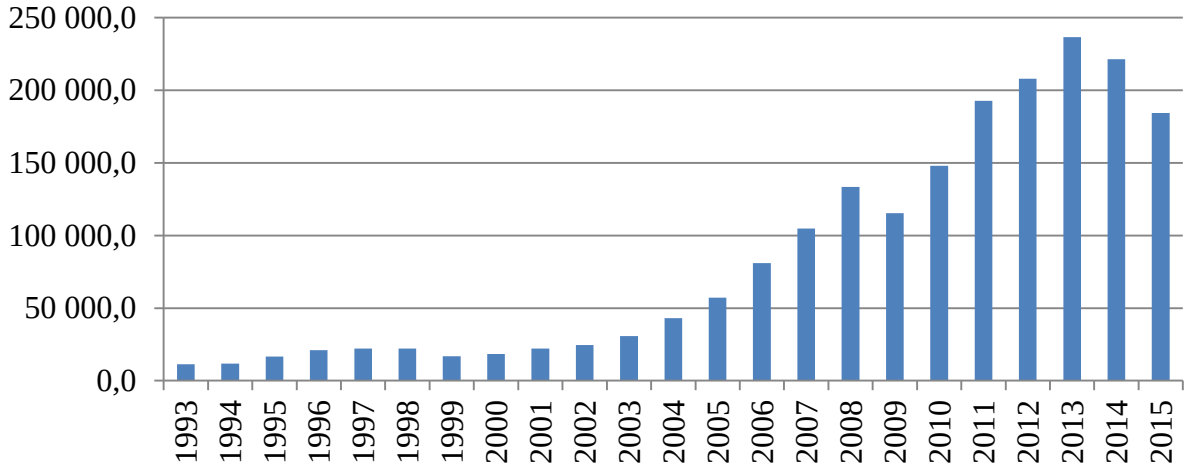

Figure 1- Kazakhstan's Gross Domestic Product for 1993-2015 y.y., mln. US dollar

With similar trends expected for the rest of the year, the 2016 growth forecast for the gross domestic product is cut to 0.1%, while projections for inflation and the current account deficit are revised up for both 2016 and 2017 (Figure 2).

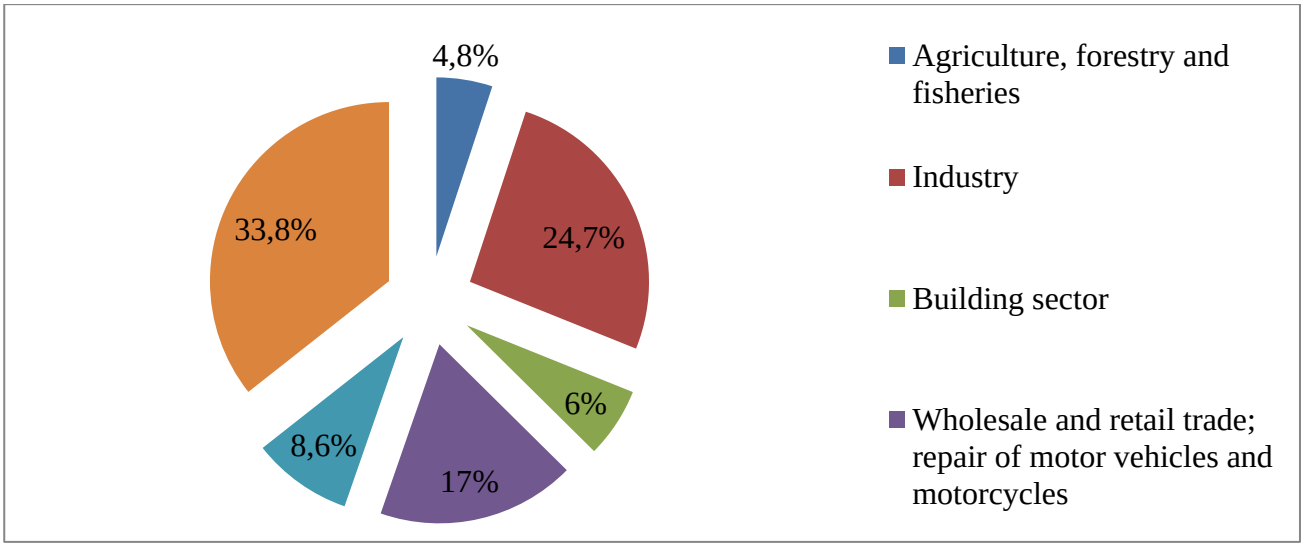

Figure 2- Kazakhstan's GDP structure for 2015 year

In the structure of GDP the largest share of other sectors. The share of industry is 24.7%. Agriculture, forestry and fisheries take 4.85 of GDP.

The "Strategic plan of development of the Republic of Kazakhstan till 2020" has indicated the objective of getting to top-50 list of World Bank and IFC Doing Business. Annual Doing Business publication in 2014 showed that Kazakhstan has improved its position and rose three points to 50th position from last year's 53rd place. In general, over the past three years, Kazakhstan has risen by 21 positions, leaving behind not only the countries of Central Asia but also its partners in the Customs Union. So, Belarus is now on 63rd place, while Russia is on the 92th. Neighboring countries in Central Asia - Kyrgyzstan, Tajikistan and Uzbekistan - are on the 68th, 143th and 146th positions respectively.

Kazakhstan holds 18th position in ownership registration and taxation. The rise in ownership registration is caused by implementing the possibility of registering business online through government website. Kazakhstan's position in taxation has not changed since 2013. The taxation rules and schemes have not changed; they already provide businesses with convenient taxation systems. In receiving a building license Kazakhstan has risen to 145 positions, and in insolvency solution it has risen by 1 point.

The worst position in Doing Business Kazakhstan holds in international trade. One of the reasons of this is landlocked position without access to the seas and weak transport infrastructure. Nevertheless, Kazakhstan is located very close to the rapid growing markets of China, Russia and India. In addition, the routes connecting the Pacific Rim with Europe and Near East are going through Kazakhstan.

The investors that operate in Kazakhstan and the potential investors have different opinions about the business attractiveness of Kazakhstan. Those who already work in Kazakhstan value the high level of economic, political a social stability of the country, and relatively low tax rates for business. Potential investors are still not aware of these advantages, and the main advantages they stress on are wages and entrepreneurial culture. However, both operating in Kazakhstan and potential investors noted the high level of development of telecommunications infrastructure and the size of the consumer market.

In the period 2004-2015 Kazakhstan has attracted about 192 billion tenge of foreign investments. In 2015 overall FDI was more than 24 billion tenge. Total turnover for the period 2011-2015 varied year to year (Table 3).

According to data of the World Bank for 2015 Kazakhstan overhauled all Central Asian countries and Ukraine by indicators of real GDP per capita (11850 US dollars), and yielded only to Russia. It should be noted that growth of this indicator from 1990 to 2010 made 18,8% in Russia (13220 US dollars), whereas in Kazakhstan -58%, that made it possible to decrease gap between two countries. Slight reduction, as compared to other countries, of real GDP per capita of Kazakhstan in recession years of 2008 and 2014 confirms the steadiness of its economy Ranking countries in terms of gross national income per capita - information about the study [3].

Table 3.Trends in International trade turnover of Kazakhstan for 2011-2015 y.y.

Indicator	2011	2012	2013	2014	2015
Total turnover (mln USD)	121 241,7	132 807,2	133 506,0	120 755,3	75 911,6
Export (mln USD)	84 335,9	86 448,8	84 700,4	79 459,8	45 725,6
Export of agrifood (mln USD)	-	898,1	911,5	930,7	794,9
Source: Statistics agency of Kazakhstan (2016) [1]					

In 2015 amount of indicators have sharp decreased [2].

The main indicators of industrial production of Kazakhstan for the period 2013-15 y.y. were characterized by a sharp drop in the physical volume of production (Table 4).

Table 4. Main indicators of industry work of Kazakhstan for 2013-2015 y.y.

Indicators	2013	2014	2015
Index of physical volume of industrial output, in percent of previous year	102,5	100,3	98,4
Number of enterprises and industries	11843	11296	11619
Income (losses) before taxation of the industry, mln. tenge	4 090370	4361715	817100
Profitability (unprofitability) level of industry, in percent	32,8	31,8	5,5
Index of enterprises-producers prices, in percents of previous year	99,7	109,5	79,5
Source: Statistics agency of Kazakhstan (2016) [1]			

The country has seen an increase in the real sector of the economy. However, the income level has decreased during the reporting period at times. Profitability of enterprises of the real sector of the economy has fallen sharply the level of the previous year. The volume and indexes of physical volume of industrial production have a tendency of declining (Figure 3).

In 2015, manufacturing industry's small enterprises produced products and services worth 213 bln tenge (in current prices). The second consecutive year's output growth made up 23% after the collapse by 21% in 2013. Revenues increased by 20% to 246.3 bln tenge. At the same time, the cost of production showed a growth by only 12%. As a result, gross profit increased almost by a half - 49%.

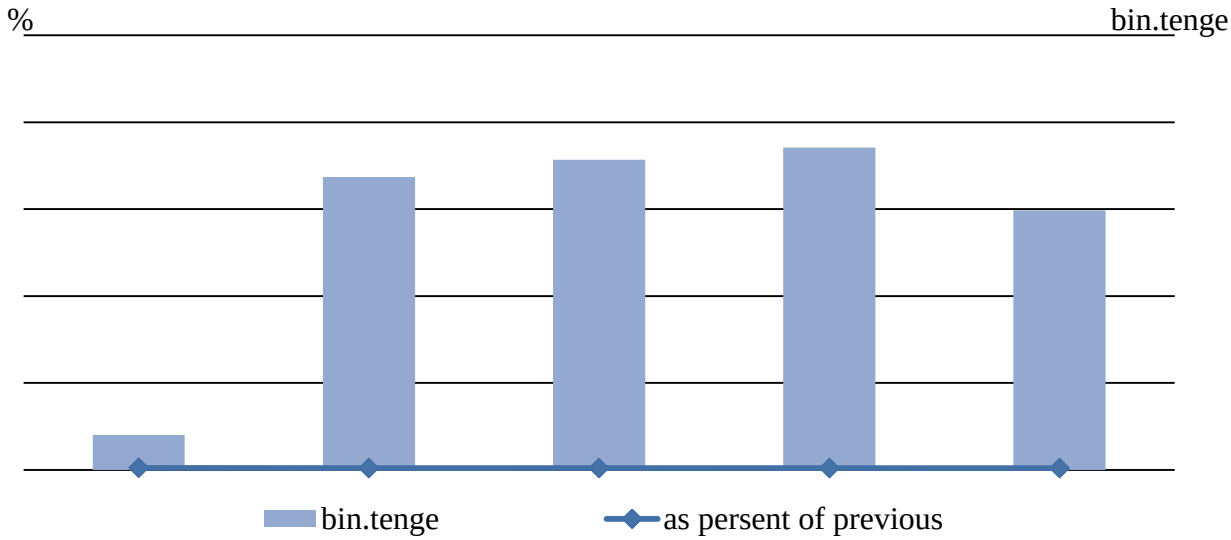

Figure 3- Volume and indexes of physical volume of industrial production (in percent of previous year and bin, tenge)

Small and medium enterprises development in Kazakhstan

The role of the business sector is really great in the socio-economic development. Due to the business sector provides market-oriented production of consumer goods and services, using local sources of raw materials, the approach of the production of goods and services to the consumer, equal conditions of life in settlements different scales the development of competition, increase revenues, which suggests GDP growth, the creation of favorable preconditions for the employment of the unemployed.

According to the view of many foreign statesmen and residents Kazakhstan is a multicultural and moderate country with high rates of economic development. Indeed, index of economic freedom shown in drawing 1 is higher in Kazakhstan than in Russia since 2005 that opens up new possibilities for arrangement of conditions for business conduct. Increase in the index of economic freedom enabled Kazakhstan to be a part of moderately free countries' group since 2006 (Figure 4). Favorable conditions promoted creation of private sector, development of small and medium enterprise [4].

Economic and social policy of the republic at this stage of its development, opens great opportunities for small business development in different regions of the country. The value of small business in a market economy is increased by the fact that it gives her the necessary flexibility, and mobilizes financial and industrial resources of the population carries a powerful potential antitrust and is the main factor in the structural adjustment, which creates favorable conditions for the recovery of the economy as a whole.

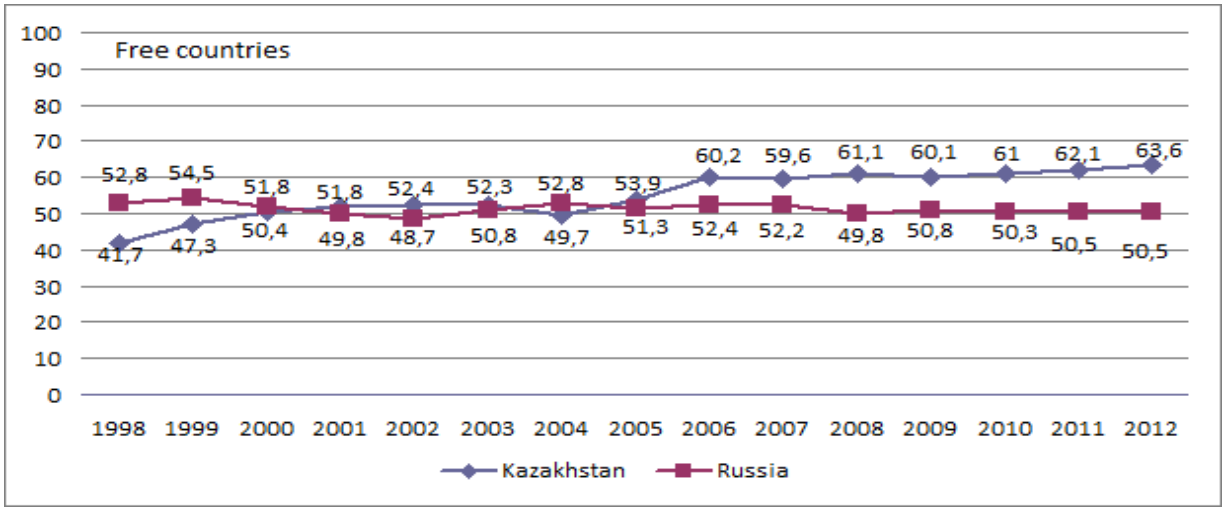

Figure 4- Index of economic freedom in Russia and Kazakhstan

Number of registered subjects of small and medium enterprise (SME) over the last seven years has increased by more than 90% compared with 2005 and according to the results of 2015 it reached 1,3 billion units.

Dynamics of active SME subjects from 2005 shows overall positive trend to growth. In 2005 the number of active SMB subjects made 504 824 units. The world economic crisis had a negative impact on activity of SME subjects. As a result, in 2008 this indicator made 703802 units, in 2010 – 652 886, but in 2015, the situation became stable and the quantity of active SME subjects made 1242579 units. The share of registered SME in total quantity subjects accounts 96.1%, and rest 0,9% are not active. In the structure of active SME subjects by legal status there is predominance of subjects which conduct business in the form of physical entity – that are individual entrepreneurs which quantity in the end of 2015 reached 882849 units or 71,2% from the total quantity of active SME subjects on the Republic (1289800). Number of peasant farm enterprises is 181 154 or 13,7%. The share of legal entities of small enterprise is equal to 14.1% (175679), legal entities of medium enterprise – 0,9% (11687) [1p.4].

Most of active SME subjects concentrated in the South Kazakhstan – 183 367 (14.8% out of total quantity of active SME), Almaty – 111 293 (13,2%) regions and Almaty city 185133 (14,9%), including if a significant part of active individual entrepreneurs and farm enterprises is in the South Kazakhstan (102174 and 68407 respectively) and Almaty regions (65508 and 45263 respectively) then a significant amount of SME occur in Almaty (128704 and 371 respectively) and Astana cities (72132 and 4 respectively). Fewest of active SME subjects concentrated in the North Kazakhstan - 34306 (2,8%) and West Kazakhstan – 39588 (3,1%) regions [5].

Industrial makeup of small business is defined by prevalence of trade and services sphere whereas industry, farm enterprise, transport and communication in most instances are spheres for big business.

SME exercises a significant influence on employment. In 2014 this sector provided preservation of more than 2810.9 thousand jobs and creation of more than 234 thousand new jobs, and in 2015 – over 3183.8 thousand and over 372 thousand jobs respectively. Volume of employment in SME as of January 1, 2016, is 3393.5 thousand people, including legal entities of small enterprise – 1194186 people, legal entities of medium enterprise – 352435 people, individual entrepreneurs – 1460338 people, farm enterprises – 386541 people. Its influence on diversification of operating structure and innovation activity is also important. Dynamics of SME sector development in the Republic of Kazakhstan is given in the following table 5.

Table 5. Dynamics of SME sector development in the Republic of Kazakhstan

Indicators	1991-1992	1993-1995	1996-1997	1998-2008	2009	2010	2011	2015
Number of subjects (enterprises) of SME (thousand)	12,4	29,2	80,0	570,0	670,0	1399,4	1399,4	1289,8
Volume of products released by SME (in thousand dollars of the USA)	188, 6	257,6	402,8	10493,4	16095,9	16760,0	49845,6	70811,9
Volume of products released by SME (billion tenge)	1234,5	1521,5	2066,3	1905,5	2043,9	2514,3	7422,0	15699, 4
Specific weight of production of SME in gross domestic product (%)	4,3	7,8	14	17,5	20,2	20,2	33,5	24,9
Quantity busy in SMB (thousand of persons)	74	127	268	1900	1900	2082	2589	3184
Share of employment in SME (%)	1,3	3,8	6,5	24.3	32.4	32,8	33,2	36
Source: Statistics agency of Kazakhstan (2016) [1]								

Release of products (goods and services) by active subjects of small and medium enterprise in 2014, as compared to 2005, increased by about 10 time and was 15568.1 billion tenge, and in 2015 volume of products released by SME made 15,7 trillion tenge (70,8 billion dollars). Ratio of SME products in GDP was from 17,5% to 33,5% over the period of 2005-2015. Volume of employment in SMB (thousand people) rose from 280 thousand people to 2 589 thousand people and share of employment in SME grew by 47% compared to 2009 [6].

Comparatively limited volume of small and medium business in gross domestic product (in 2010 - 20,6%, 17.3% - in 2011, and 24.9 in 2015) by contrast to developed countries (Germany -57%, Great Britain – 52%, the USA – 52%, France – 50%) is caused by the reason that the most part in GDP in Kazakhstan is big business

(7% of big business makes 70% of GDP, represented by oil, mining and smelting sectors). Business of big companies is mainly focused on raw material industries (Statistics agency of Kazakhstan. 2012) [7].

In spite of growth trend in volume of products released by SME subjects their contribution to GP of Kazakhstan is still insufficient. However quantity of SME output and its share in gross domestic product of the country has growth trend. If in 2007 contribution of small and medium business in GDP was equal to 10.7% then in 2008 it decreased to 16.7%. However in 2010-2011 the growth of output continued with the result that SME contribution to GDP reached 20,6% in 2010 and it reached 24,9% in 2015 year [8].

Represented data confirm that public interest to carrying on business is growing in Kazakhstan, but it is noticeable that considerable quantity of new undertakings does not have facilities for further development [8 p. 7].

Primary reasons of low potential of new business undertakings are explained by insufficient competence of entrepreneur, the fact that business idea is not explored which in its turn has a negative effect on non-competitiveness of his business.

It means that as of today fair conditions for carrying private entrepreneurship by population are established in the country, but majority of population is not conscious of the need reinforcement of their own entrepreneurial potential as an important factor of their business success.

Not substantial contribution of SME to GDP requires solution of many existing problems, for which reasons the Government of the Republic of Kazakhstan pursues active economic policy on provision of economic diversification and stable rate of economic growth at the cost of SME role increase. The state supports entrepreneurship by steady regional development of SME taking into account specifics of each region's economy.

Entrepreneurship development is one of the most primary directions of economic policy in Kazakhstan. Support of small and medium enterprise promotes economic diversification and activation of republic entrepreneurial potential, reports Zakon.kz with reference to official site of the Prime Minister of the RK.

"During the Independence the quantity of small and medium business subjects has increased more than 35 times", - said President of Kazakhstan Nursultan Nazarbayev at a solemn meeting devoted to the 20th Anniversary of Independence of Kazakhstan [9].

The Government implements countrywide support of small and medium business subjects for stimulation of domestic entrepreneur's activity for creation of new high-quality productions and steady economic development of the country. Today the state sets strategic task to increase the share of SME in GDP of the country by 7-10% by the year of 2020 [7p.15].

During the implementation of Business roadmap 2020 through first direction: support of business ventures, rehabilitation of business sector, reduction of exchange rates of entrepreneurs and reinforcement of entrepreneurial potential will be

continued for support of entrepreneurship development, including small and medium business [10].

According to the results of 2 011 567 enterprises got support in the amount of 96 848 billion tenge according to the first direction of "Business roadmap -2020" program, providing support of business ventures. 116 contracts on subsidization to the amount of 110 696 billion tenge were concluded according to the II direction of "Business roadmap -2020" program. 58 contracts in the amount of 46 466 billion tenge were concluded according to the III direction of "Business roadmap -2020" program. Besides, 618 people in eight regions of the republic obtained micro-credits for organization of their own business within the "Program of employment-2020" [9 p.4].

In consequence of these programs implementation indicators of SME development in Kazakhstan has been significantly improved up to date. In accordance with report of the World Bank Kazakhstan has improved its positions by a number of indicators in the Ease of Doing Business rating and having raised for eleven positions it took 47 place [3 p.5].

However, along with the obvious progress in the country, there remain serious problems, which are fixed as international funds, and Kazakh entrepreneurs. One of the essential problems of Kazakhstan's economy is its low competitiveness. Dynamics of competitiveness index of Kazakhstan and Russia in comparison with similar indices of the USA is given in figure 5.

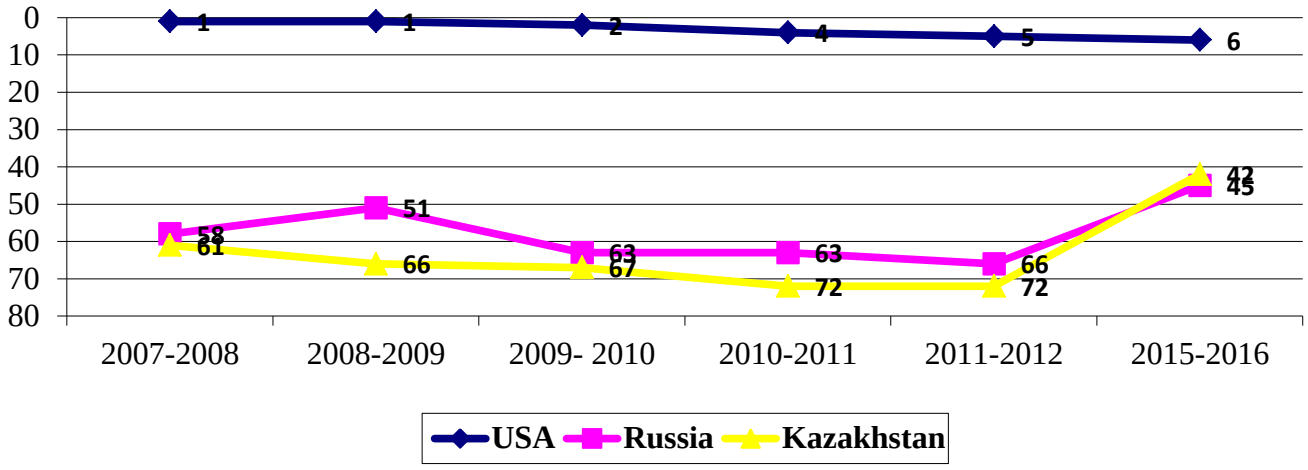

Figure 5- Places of Russia, Kazakhstan and the USA in accordance with competitiveness index, the World Economic Forum, 2007-2016.

Both countries demonstrate deteriorating situation on the indicator till 2015 year. Thus, in 2011-2012 year Russia has taken 66th place from 58th place in 2007-2008. Similarly, Kazakhstan has moved from 61st in 2007-2008 years to 72d place in 2011-2012. However in the 2015-2016 years Russia climbed to 45th place and Kazakhstan took 42d place [7 p.17].

Another major issue is the lack of progress of institutional reforms in Kazakhstan. According to data of the Worldwide Governance Indicators Project they still remain at a low level despite the growth of most indicators of state administration.

The main problems of entrepreneurship is the prevalence of primary exports, the low proportion of SMEs in Kazakhstan's GDP is relatively undeveloped formation of enterprises, producing value-added products. The share of products manufactured by small and medium-sized businesses in the GDP remained at an average level of 22-33%. Also, experts note a number of factors hindering the development of SMEs in Kazakhstan: a lack of awareness of the population, high interest rates for business, administrative barriers, etc.

Conclusion

Small and medium enterprises development is an important resource for economic modernization of Kazakhstan. Such structures do not require upfront investment volume, are the guarantors of social stability and irreversibility of modernization processes by involving the general public in industrial and innovative sector. But this is problematic sphere that requires financial support, optimal taxation, and public administration.

Therefore, the government needs to pay special attention to the issues and the development of small and medium businesses. And finally, as a result of a multilevel system of support (at the state, regional and local levels), the small business can be one of the deciding factors of socio-economic development

Proven experience of developed countries in creation of competitive and diversified economy lends evidence of the fact that small business is one of the key elements in this process. Condition and level of development of small business sector plays a vital role in providing sustainable economic growth of the country, promoting the solution of certain problems, such as unemployment, poverty, inadequate competition, inefficient use of material and nonmaterial resources, the dependence of domestic cumulative demand on imports, etc.

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CHAPTER 4. MANAGEMENT AT THE MACROLEVEL: PROBLEMS AND PROSPECTS OF SUSTAINABLE DEVELOPMENT OF THE MARKET IN THE CONDITIONS OF GLOBALIZATION

4.1. HARMONIZATION OF LAND MANAGEMENT IN DOMESTIC AGRICULTURAL SECTOR WITH GLOBALIZATION PROSPECTS[15]

The study of forecasts for the economic, social, environmental and integrated efficiency of land management (here in after LM) of agricultural sector allow a formalized transition to the advanced world models of land-use. The state should operate with available tools, taking into consideration not only the economic laws, but also the trends and patterns that have been established at the level of world agricultural relations, including land relations. Evolution of processes with limited predictability requires a particular purpose and context that implies the harmonization of LM efficiency in domestic agricultural sector with globalization prospects. This context makes the logic of this study.

As for the major world trends in the development of the agricultural sector, they are reduced to a significant increase in demand for agricultural products and foodstuffs with increasing volatility in their prices (Table. 1).

Table 1.Major global trends and their impact on land management in the agricultural sector in Ukraine *

Global trends	Consequences for Ukraine
Significant growth in demand for agricultural products and food, especially for beef, pork, poultry, butter, cheese, powdered whole milk and skim milk	Increase in revenue from all national agents of land interests. A significant increase in domestic prices for agricultural products and foodstuffs
Volatility of world prices	Farmers' losses, the need for development of agricultural insurance
The rate of production of agricultural raw materials outpacethe growth of their processing and storage	Shortfall in received added value for agents of land interests
The global problem of food production	Growth of land prices, the intensification of production
Conclusion of free trade agreements within the Transatlantic partnership in trade and investment between the US and the EU (TTIP)	Diversification of production, harmonization of national standardization and certification system with the world standards

** Systematized according to the materials [2, p. 13; 6; 12, p. 21].*

[15] Authors: Mykola Zos-Kior, Oleksandr Goloborodko, Olena Zerniuk, Sophiya Spivak

These facts, on the one hand, lead to an increase in revenues of the national agents of land interests, and on the other hand (according to the effect of exports) to the growth of domestic prices for agricultural products and foodstuffs to the world level. At the same time, the limited range of exports is a negative factor for Ukraine whose agribusiness entities perceive volatility of world prices at the level of financial losses. The way out of this situation could be to increase the range of agricultural and food products, expanding sales lines as well as circles of partner countries. The rate of production of agricultural raw materials outpace the growth of their processing and storage, therefore national agents of land interests receive less added value, as global competition is more significant at the market of finished products and warehouse logistics.

Against the background of the global problem of food production, in addition to increasing demand for production, the load on the land also increases because of the transition to biofuels. Among the most significant global trends, formation of a free trade zone between the US and the European Union (TTIR) should be highlighted; which will also influence significantly the agricultural market situation, and accordingly, through a number of globalization impacts on LM, the relationship between a number of agents of land interests will transform from competing into complementary model.

The trends mentioned above will be for Ukraine generally positive consequences, provided that the national preventive and administrative adapters develop, including the system of agricultural insurance [1], and there are restrictions on acquisition of agricultural land by foreigners, harmonization of national standardization and certification system with the world.

It should be noted that these trends also reflect both regional (EU) and national trends, which, incidentally, almost coincide (due to the effects of global deformation):the increased proportion of gross agricultural output in GDP; increased area of a farm; increased percentage of employees; strengthened vertical integration; increased capital intensity of production as well.

Besides the general trend, certain patterns of land use in the agricultural sector of Ukraine have recently been formed (tab. 2), which are generally also coincide with the global situation.

These patterns suggest many unresolved issues in land use, such as:

- Targeted use of suburban land;
- Micro-credit for land-poor areas;
- Cooperation, including cooperation within the framework of international cooperation;
- Improving business culture among farmers;
- Stimulating economic diversification and so on.

In the global context, the problems should be resolved by the international community as well, as Ukraine will soon affect world prices to some extent, as predicted by the forecast estimates on the agricultural sector in Ukraine (according to

the US Department of Agriculture (USDA), Food and Agriculture Organization (FAO) and the Organization of economic cooperation and development (OECD), in view of the tense situation with the prices for agricultural products and food on world markets. Thus, the strategy of development of agriculture and rural area in Ukraine in 2015-2020, developed by the European Union, the European bank for reconstruction and development, USAID (United States Agency for international development), the World bank and FAO (global agents), has for a key position an increase for grain production to 100 million tons per year. During the implementation of this strategy it is necessary to consider the proposed methodological principles of forming economic, social and environmental effectiveness of LM, since the total yield can be achieved either through extensive way or intense way provided for a significant increase in anthropogenic pressure on land, or changes in the structure of sown areas with increased crop and deteriorating balance of humus in the soil.

Table 2. Patterns of land use in the agricultural sector of Ukraine*

Condition	Use of land
Opportunities of land tenant Low provision for land	More intense
Low quality, no demand	On their own, beyond lease
Proximity to the city	Incomplete(part of territory)
Increased international trade	Increased land output
Larger share (land bank)	Increased rent
Higher competition for the lease	More responsibilities of land tenant
Lower provision for land	Higher land price
Large tracts of land	Mainly for plant-growing
Land-poor territories	Mainly for breeding

** Done using the source [9].*

According to the strategy before 2020, it is planned to develop environmental standards and indicators of environmental problems of the agricultural sector. For the development of organic production it is suggested to develop and implement environmental legislation, harmonized with the EU legislation and create the relevant department in the Ministry of Agrarian Policy and Food of Ukraine on the development and marketing of organic production. In the agricultural management of regional administrations it is suggested to appoint at least one employee responsible for this direction. It is planned to give priority access for organic producers to tenders and to credit organic projects with interest of 4.6% in euros and 12.8% in UAH [21]. At the same time the state is trying to optimize the structure of the agricultural use of the land resources in the framework of harmonizing land-use standards with the EU; and this concerns all regions of Ukraine (Table. 3).

According to the forecast, there is a trend towards a significant reduction of agricultural land in all categories from 41,720.6 thousand Ha to 35,490.0 thousand

Ha. In particular, in future it is planned to restore agro-landscape balance of Ukraine before 2030. In the national distribution of agricultural land among users up to 2030 it is planned that all categories of farms have86.7%, share in the amount and other land users - 13.3%, agricultural enterprises - 39%, collective farms - 10.5% individual farms - 36.6%.

Table 3. The optimal structure of agricultural use of land resources of Ukraine for 2030, thous. ha [23]

Indicator	Steppe	Forest-steppe	Woodlands	Ukraine
Total	25019,8	20291,4	15043,6	60354,8
Agricultural land	19159,9	14580,2	8086,4	41826,5
of this arable land	15575,3	11961,6	6320,6	32857,5
Plow,%	81	82	66	79
Arable land used for natural grasslands and a forestation	4146,8	3090,5	1392,2	8630,9
of this eroded slopes 3 ° or more	1517,5	1715,6	461,0	3694,1
Unproductive lands	1165,4	584,2	430,2	2179,8
water protection zone	477,3	354,0	206,2	1037,4
salt	326,4	37,5	25,6	389,5
other	660,2	399,2	269,2	1328,6
Arable land remains in all categories	11428,5	8871,1	3928,4	24227,4
Plow,%	60	61	49	58

These projections are impossible without improving LM system not only in quantitative but also in qualitative way, moreover, they have to fit into the current forecasts for the agribusiness of the world, including the European Union, taking into consideration the consequences for Ukraine (tab. 4). According to current global forecasts up to 2020 global market volume of organic products will increase significantly and could be 200-250 billion $, which will stimulate the development of organic farming in Ukraine. By 2023 Ukraine will provide about 6.3% of world trade in wheat grain, feed grain - 12.1, vegetable oils - 6.0, poultry - 1.4, butter - 0.5, cheeses - 3 5%. By 2050 the need for grains will increase by 100%, which will

Table 4. Current forecasts of agribusiness development and consequences of their implementation for LM in Ukraine

Expected factor	Source	Timing	Consequences for Ukraine
The volume of the world market for organic products may be 200-250 billion $	FAO	before 2020	Development of organic farming
Ukraine's place in world exports	OECD and FAO	before 2023	Provision for 6.3% of world trade in wheat grain, feed grain - 12.1, vegetable oils - 6.0, poultry - 1.4, butter - 0 5, cheeses - 3.5%
The need for grain will increase by 50%	UN	before 2030	Ability to significantly influence world prices
The need for grain will increase by 100%	UN	before 2050	The opportunity to significantly influence world prices
Port capacity of simultaneous storage of grain will be increased twice	SE "AMPU"	before 2020	Reduction in logistics component of production, strengthening the role of international trade
The increase in the proportion of single people in the US - 70%, who consume more food by 38%	FAO	before 2020	Increased exports of agricultural products
Construction of irrigation networks and reconstruction of canals on the area of520 thousand Ha	MAP of Ukraine	before 2020	Improving the environmental, economic and social components of LM efficiency
Expected factor	Source	Timing	Consequences for Ukraine
Exports of grain from Ukraine (mainly wheat and maize) will increase by 60% due to China, which greatly increases production and imports of pork	FAO and OECD	before 2021	Increased revenue for all national agents of land interests
Biofuel production will increase by nearly 70%, where will be used28% of global sugar cane, 15% of vegetable oils and 12% of coarse grains	FAO and OECD	before 2022	Increased revenue for all national agents of land interests
Worsening global problem of food security of entire regions of the world	FAO and OECD	stable trend	growth in prices for Ukrainian fertile land
The introduction of new technologies in the agricultural sector	UCAB	before 2020-2022	Increased profitability to 75%

** Compiled using [2, p. 13; 3, pp. 96; 7; 8; 11, p. 64; 18, p. 35; 20; 24, p. 54; 27, p. 28].*
*** DP "AMPU" - State Enterprise "Administration of seaports of Ukraine"*

significantly give the opportunity to affect world prices. If the port capacity of simultaneous storage of grain is doubled in Ukraine, logistics component of production will get cheaper; its role in international trade will be strengthened.

Construction of irrigation networks and reconstruction of canals on the area of 520 thousand Ha will improve the environmental, economic and social components of LM efficiency. If by 2021 grain exports from Ukraine (mainly wheat and maize) increase by 60% due to China, which, in turn, intends to significantly increase production and imports of pork, it will increase the revenues of all national agents of land interests. Biofuel production, which is projected by 2022 to grow by almost 70% (where will be used 28% of global sugar cane, 15% of vegetable oil and 12% of coarse grains) will also trigger an increase in revenues of all national agents of land interests. Worsening global problem of food security of entire regions of the world will cause the growth of prices for Ukrainian fertile land. Due to the introduction of new technologies in the agricultural sector, the profitability of agribusiness will increase to 75%.

These forecasts have a positive impact on the agricultural sector of Ukraine, again provided for the work of preventive and administrative adapters, configured primarily on the environmental component of the agricultural production.

We offer some calculations concerning the change of the crop structure in the domestic agricultural sector in the context of the implementation of the statements of presented forecast (see. Table. 4). For example, the impact of replacing 1 million ha of sowing winter wheat for maize calculated in 2014 (Table. 5) shows that maize being more demanded on market is capable in the current conditions to bring 610 UAH / ha more profit; that will give additional 610 million USD from 1 million hectares.

Table 5. The impact of replacing 1 million hectares of sowing winter wheat for maize (estimated in 2014) *

Performance	Winter wheat	Maize	Estimated output
Productivity, cwt / ha	40,1	61,6	21,5
Croppage, million tonnes	4,01	6,16	2,15
Total cost, billion UAH	5,86	8,63	2,77
Price realization, UAH / t	1872	1768	–104
Income, billion UAH	7,51	10,89	3,38
Profit, billion UAH	1,65	2,26	0,61

** Calculated on the basis [18, p. 34; 19].*

Replacing sunflower for maize gives an opportunity to get 270 UAH / ha more profit; that represents additional 270 million USD for 1 million hectares. (Tab. 6). Similar calculations have been made by experts of the Association "Ukrainian Agribusiness Club" for the following crops:

- Flax (oil) –for the minimum selling price of $ 300. $/ t for 1 hectare income is $ 180 / ha;

- Technical hemp - at a minimum selling price of $ 890/ t for seeds (or selling price of $ 70 $/ t for fiber) profit per 1 hectare is 358 USD / ha;

- Walnut - with a minimum selling price of $ 663/ t on 1 hectare profit is 495 USD/ ha [5].

Table 6. The impact of replacing 1 million hectares of sowing sunflower for maize (estimated in 2014) *

Performance	Sunflower	Maize	Estimated output
Productivity, cwt / ha	19,4	61,6	-
Crop page, million tonnes	1,94	6,16	-
Total cost, billion UAH	5,47	8,63	3,16
Price realization, UAH / t	3847	1768	– 2079
Income, billion UAH	7,46	10,89	3,43
Profit, billion UAH	1,99	2,26	0,27

** Calculated on the basis [18, p. 34; 19].*

Environmental problems in LM need to be resolved because of the inability to fit into global trends and forecasts; and considered relatively to their causes (tab. 7).

Thus, the problem of the ineffectiveness of the measures for the protection of land is explained by the lack of owner's motivation to conserve depleted land. In order to solve this problem successfully, we recommend that the state should provide an equal alternative for the period of restoration of fertility (e.g. equal land area). The problem of low quality of soils is explained by irrational structure of sown areas, non-use of organic fertilizers. In the given situation we can offer:

- Development of livestock; that will ensure the inclusion of annual and perennial grasses to crop rotation;

- Green manure crops, maximum reduction of leaching organic mass from the field through eliminating the collection of by-products (straw), composting;

- Financial cooperation, developed under the Kyoto Protocol, which provides funding for measures designed to bind carbon in soil; that is inextricably connected with increased humus.

The problem of volatility in grain prices caused by considerable dependence on external conditions for grain as raw material; can be solved through the development of domestic processing industry, livestock development.

In the context of the above forecast for 2010-2014, international projects for improving LM in Ukraine have been developed and partially implemented for agricultural purposes, the main of these are:

Table 7. Causes and recommendations for solving environmental problems in LM of the agricultural sector of Ukraine *

Problem	Causes	Recommendations for solving
The ineffectiveness of the measures of land protection	Lack of owner's motivation to conserve depleted land	the state should provide an equal alternative for the period of restoration of fertility (e.g. equal land area).
Low quality of soils	irrational structure of sown areas, non-use of organic fertilizers	Livestock development; that will ensure the inclusion of annual and perennial grasses to crop rotation; green manure crops, maximum reduction of leaching organic mass from the field through eliminating the collection of by-products (straw), composting; financial cooperation, developed under the Kyoto Protocol, which provides funding for measures designed to bind carbon in soil; that is inextricably connected with increased humus.
Instability of prices for grain	Substantial dependence on external conditions for grain as raw material	Development of domestic manufacturing industry, the development of livestock

** Calculated based on [14, 15].*

1) Pilot project to restore irrigation systems in Ukraine (modernization of irrigation systems on Kakhovka channel) - Export-Import Bank of China, EBRD, Export-Import Bank of the United States according to tender;

2) Pilot project to restore irrigation systems in Ukraine (restoration of irrigation system in the south) - Export-Import Bank of China;

3) Project "Support to fruit and vegetable industry in the southern regions of Ukraine" - Canada, Israel;

4) Project "Development of irrigation reclamation of Ukraine" - World Bank, Saudi Arabia, China;

5) Project "Support to development of Ukrainian agribusiness of small and medium size» - IFC (World Bank Group);

6) Project "Agricultural energy saving and financing of small producers" - private foreign investors Corp. USA (OPIC);

7) Project "Development of granaries and agricultural cooperatives" - Dnipropetrovsk Regional Council, the Department of Foreign Affairs, Trade and Development of Canada (DFATD);

8) Project "Integrated Land Use of the Eurasian Steppes" - EU

9) Project "Revival of navigation on the Dnieper and the Southern Bug" - "NIBULON";

10) Project "Start-up of grain technological and deep-water terminal in the port "Pivdennii" - State Enterprise "Seaports administration of Ukraine "(tab. 8).

An additional problem in the implementation of these forecasts of agribusiness development is undeveloped national joint agents. In the modern system of logistics infrastructure, in order to enter effectively the foreign market, such as grain, in Ukraine volume should be concentrated at the level of at least 1 million tons, which is possible to obtain from at least 100 thousand Ha. This creates conditions for land overconcentration, as without having significant advantages in logistics software, in participation of joint agents and of the state in agricultural policy, including land relations, mini- and micro-agents are trying on their own to solve problems associated with globalization influences; and in accordance with the theory of global strains - to expand land banks and be vertically integrated.

Since most private farms (mini-agents) for the quantitative measurement (land area) correspond to European standards of land use, it would be appropriate to harmonize their LM system with the European standards. Based on this thesis, realization of investment projects in the agricultural sector shows a high probability of "domino effect", i.e. when the implementation of a project or event with possible external influence will provoke transformational staged implications without external influences.

Table 8. International projects for improving LM of Ukraine of agricultural purposes (according to 2010-2014.) *

Project	Financing, mln $.	Investor	Purpose of the project
A pilot project to restore irrigation systems in Ukraine (modernization of irrigation systems on Kakhovka channel)	1200	Export-Import Bank of China, EBRD, Export-Import Bank of the United States according to tender	Irrigation in the area of 250 thousand Ha (In Kherson and Zaporizhia regions)
Pilot project to restore irrigation systems in Ukraine (restoration of irrigation system in the south)	3000	Export-Import Bank of China	Irrigation in the area of 1200-1400 thousand Ha

Support to fruit and vegetable industry in the southern regions of Ukraine	19,3 Million of Canada dollars	Canada, Israel	Support of small and medium enterprises, and in the future - establishing self-sustaining clusters of production and marketing of products based on marketing, logistics and infrastructure
Development of irrigation reclamation of Ukraine	1000	World Bank, Saudi Arabia, China	Development of land reclamation in all regions of Ukraine
Support to development of Ukrainian agribusiness of small and medium size	…	IFC (World Bank Group)	Multi-purposed, including storing grain
Agricultural energy saving and financing of small producers	250	private foreign investors Corp. USA (OPIC)	Energy efficiency and financing of small producers
Development of granaries and agricultural cooperatives	2	Dnipropetrovsk Regional Council, the Department of Foreign Affairs, Trade and Development of Canada (DFATD)	Elevator for 36 thous. «The First Cooperative Elevator" urban village Vasilkivka Dnipropetrovsk region
Integrated Land Use of the Eurasian Steppes	…	EU	Protecting biodiversity of Eurasian steppes
Revival of navigation on the Dnieper and the Southern Bug	…	Nibulon	Revival of navigation on the Dnieper and the Southern Bug
Start-up of grain technological and deep-water terminal in the port "Pivdennii"	…	Cargill, MV Cargo and Seaports administration of Ukraine. The state represented by AMPU according to the memorandum shall ensure appropriate depth of berths	The first phase of Terminal 5 million tons, the second - 2-4 million tons in 2017

** Calculated according to [13, 16, 17, 25].*

For example, let's consider two projects on the table. 8 (Fig. 1). This effect is created under the action of globalization influences that form in this case consolidated unity of mini-, micro- and corporate agents.

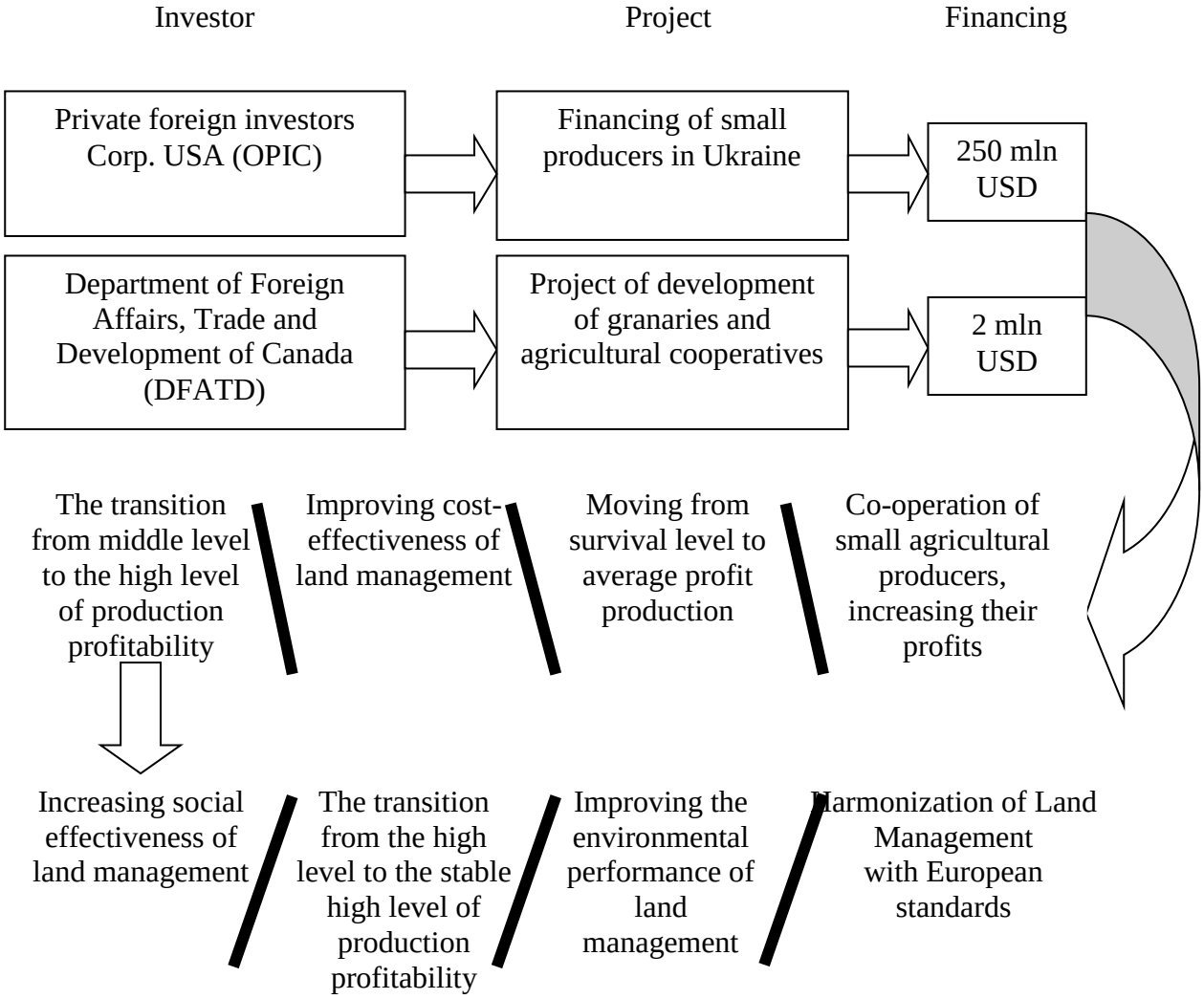

Figure 1- "Domino effect" from the implementation of investment processes in agriculture in order to harmonize land management with the European standards

Discussed economic priorities are the subject of this effect and in the financing of the projects pass through the following steps:

- Clustering of small farmers, increasing their income;
- Transition from survival level to average profit production;
- Improving cost-effectiveness of land management;
- The transition from middle level to the high level of production profitability;
- Improving the social effectiveness of land management;
- Transition from high level to the stable high level of production profitability;
- Improving the environmental performance of land management.

Finally, these transitions are the guarantor of harmonization of LM with the European standards.

In the process of harmonizing with European standards the three-level system of standardization should be overcome, which has developed and operates in Ukraine in recent years. In accordance with the principles of the Association Agreement with the EU, Ukraine should gradually introduce European standards (EN) as national ones. In the area of agriculture and food products, almost 300 international standards of Codex Alimentarius should be harmonized [10, p. 83].

An additional problem in the implementation of international projects with Ukraine is to identify country of origin, which must have certain associations. Thus, according to the action plan issued by the Ministry of Agrarian Policy and Food of Ukraine and central executive bodies whose activities are directed and coordinated by the Cabinet of Ministers of Ukraine through the Minister of Agrarian Policy and Food of Ukraine, the Program of the Cabinet of Ministers of Ukraine and the Coalition Agreement in 2015; the task number 6.29 is the creation and promotion of the brand "product of Ukraine", the content of which is drawing up and adoption of a legal act on the concept of forming a high image of Ukrainian production on the world market.

In the view of the authors, other more creative optionsare possible. Ukrainian farmers in their dual development (intensification and organic production) have the opportunity both to significantly increase the volume of exports of agricultural products that are in demand and meet the standards of importing countries; and consolidate the positive image of the country as a producer of organic (useful, healthy, natural) agriculture and food by forming recognizable national brand, which should be formed on analytical and consulting platform of the Association "Ukrainian club of agrarian business". Advancement of brand (e.g., similar to the «American Way» - «Amway», «Ukrainian Way» - «UkrWay») through, for example, migrant workers, Ukrainian diaspora abroad, advertising on the Ukrainian automobile, rail, water and air transport that travels abroad and high quality of products will create a positive agro-ecological image not only for a specific farming or specific national agricultural sector, but the whole country Ukraine as a food superpower.

It is advisable to form national brands on the basis of wholesale markets. For example, agri-food wholesale market in Lviv "Shuvar" can introduce TM «UPway» («Ukrainian-Polish way»), which means Ukrainian-Polish way.

The brand is formed not only by the activities of producers, but also includes social world of consumers - mediatized world of everyday existence of people in the form of fan clubs, societies and lifestyles. Brand is what determines and mediates the relationships between people. If a brand is defined as a cultural phenomenon, whose values are carried by people, namely citizens or members of one ethnicity/ company (in the form of a friendly attitude and corporate volunteering) and consumers, it is the relationship that is distributed between them that determines the presence of the brand of the country/ company or lack thereof. Modern forms of interaction between brand and consumer are the so-called brand communities that operate in real and

virtual spaces, as well as a wide range of "creativity" (from the real advertising and personalization to co-design). Therefore, it is important to create meaningful social media and to involve autonomous creativity of consumers to obtain maximum economic benefit (value) along with the spread of moral values (values).

Thus, consumers can independently perform certain operations:

- Self-service when buying goods or obtaining services through special equipment, from product selection and finishing checkout (consumer as a quasi-employee);

- Providing consumers with information on the quality of service of their staff through various forms of monitoring and evaluation (consumer as a quasi-observer);

- Spreading information on the company by posting comments in social media, real advertising, wearing symbols and attributes of brands (consumer as a quasi-marketing specialist) - Fig. 2.

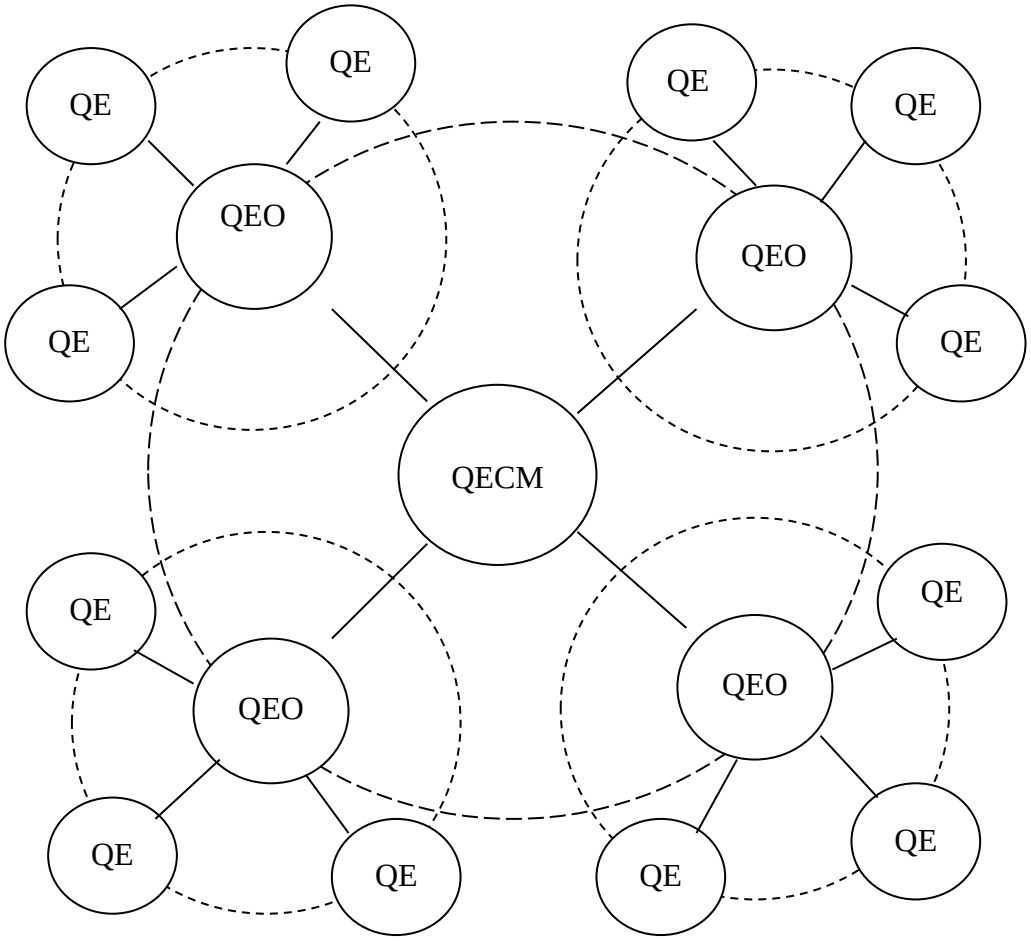

Figure 2- Scheme of the network structure of sales of organic products using a quasi-employee (QE), a quasi-employee observer (QEO) and quasi-employee, customer, marketing specialist (QECM)

(developed on the basis of [22])

In the conditions of integration of agricultural production of Ukraine into the world economy, the importance is growing of forming its competitive advantage through the creation of organic product sold as an ecological brand, eco-brand. Domestic researchers defineeco-brand as an intangible asset that is formed through bilateral process of value interaction (purity, healthy lifestyle) of organizations and consumers.

According to C. Koeber, agricultural producers find it important to identify and consider the value of this asset for assessing and forecasting their own economic performance. The value of eco-brand is defined as the total expenditure on the formation of semantic-symbolic component of organic agricultural products, and not as the cost of production of valuable relationships that underlie the concept of "eco-brand." Therefore, the problem is the integration of a meaningful core of brand in the methodology for assessing its value, namely identifying the sources of its formation [4; 26, p. 207-213]. From among the latter efficient LM of the national agricultural sectorplays an important role.

Summarizing the study, it should be noted that the actual effectiveness of LM corresponds to 17.3% of the potential for the current state of the external and internal influence factors of environment. Comparing its level to the European average, according to the author's methodology, it can be stated that it is equal to 10% of the level of Netherlands, or 20% of the level of Germany, or 53% of the level of France (given only a partial indicator "population, which is actually fed out of 1 ha of agricultural land "). Thus in the conditions of significant threats to national defense, Ukrainian business as a completely plastic institution almost instantly (only in 2014) moved the center of gravity from metallurgy, energy and chemical industries towards the agricultural sector. With the economic and political instability, this process can be amplified through great productive motivation and globalization influences.

In economies of countries dependent on import (for agricultural products and foodstuffs) global deformation resulted in reducing immediate dependence, i.e. the formation or increase of stocks of agricultural products and food on domestic area. This will slightly reduce the range of variation of seasonal price fluctuations primarily for grain, and will also attempt to increase the amount of reserve funds, that will increase the demand of spasmodic type for food against the background of its stable growth. The possibility of Ukraine in this background to increase significantly its own production is for domestic producers the most realistic and clear globalization perspective.

We emphasize the need of diversifying agricultural production and markets, deeper processing of products that will allow to export products with greater added value and, consequently, will permit to receive its larger elements - rent, depreciation, wages, interest, profits; i.e. to motivate the appropriate agents of Land interests.

In addition, for term of globalization in Ukraine related to land use, according to the authors, is marked by the influence of LM efficiency drivers, such as:

- The development of logistics infrastructure;

- Security of private land ownership and other rights to it and added value from its use;
- The availability of cheap funds for business;
- The level of monopoly;
- Ease of doing agribusiness;
- The level of corruption;
- The system of state quality standards;
- The development of public-private partnerships;
- Decentralization of power;
- The system of state protectionism (Fig. 3).

These drivers, depending on the specific situation, may change places with each other, in other words they are mobile. The list of drivers is also temporary, e.g. the possibility exists of the appearance of new drivers or elimination of their effect due to the loss of sensitivity of land users on their change.

Regarding preventive and administrative adapters, today one of the largest of these is the moratorium on sale of agricultural land. The country's scope represents the general economic conditions, registered in the Commercial and Land Codes, as well as taxation, provisions of the Law of Ukraine "About Foreign Economic Activity" non-restriction of land banks, forming vertically integrated structures.

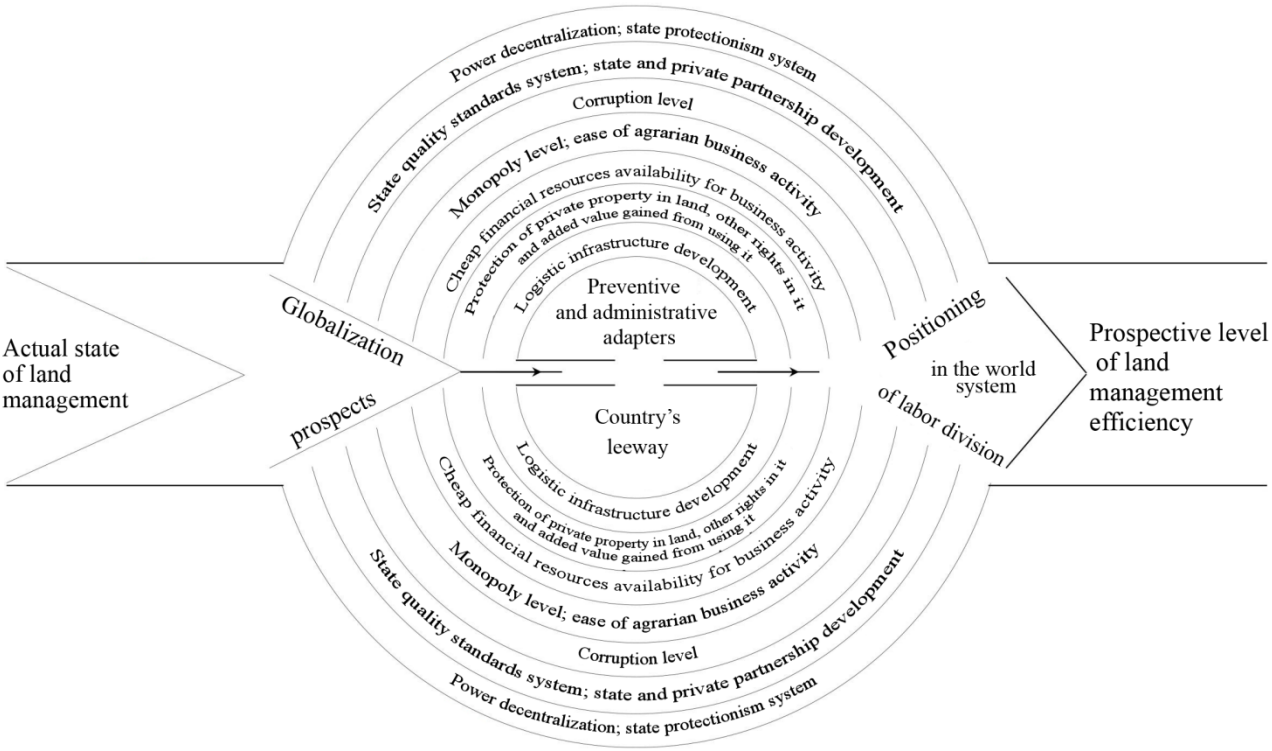

Figure 3- Formation of perspective level of efficient LM through the globalization perspective and internal drivers

Globalization prospects of national land users under the action of these drivers, preventive and administrative adapter with peculiarities enabled by the country's scope, are forming position of land users in the international system of division of labor, which ultimately determines the level of LM perspective.

The perspective level of land use should be considered in the process of harmonization of national LM of the agricultural sector of globalization prospects for sustainable development and food security. According to the authors, this process can be represented as a scheme of harmonization of economic interests of actors of land relations through financial and organizational capacities of these actors (Fig. 4).

The logic of the scheme is explained by the fact that the basis of actions of LM are economic interests of mini-agents, micro-agents, joint agents, the state, regional and global agents, which are oriented on a certain amount (share amount) of owning, using and handling objects of management (land, land rights or the added value from land-use), taking into account possible level of globalization impacts (social, economic, political, organizational, financial, information).

Thus, a dynamic level of efficiency of LM is formed, as well as its tendency, to be perceived by agents of land interests as input for the new cycle of activity (operational, tactical or strategic planning).

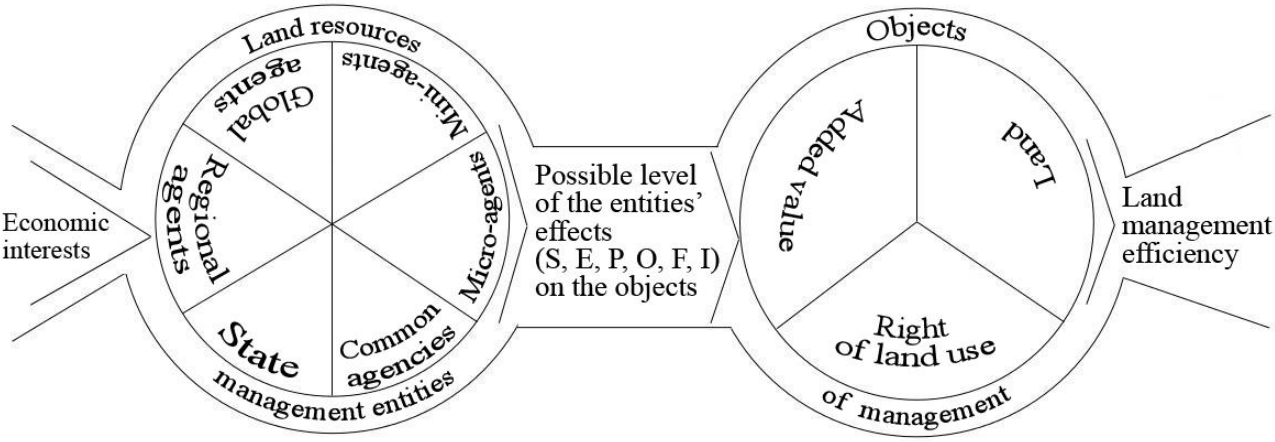

Figure 4-Scheme of harmonization of economic interests of land relations of actors of land relations through their capacities

As a result, we should note that the basic global trends and their impact on LM of the agricultural sector of Ukraine are reduced mainly to increased anthropogenic load on them. The author scheme of "domino effect" from the implementation of investment processes in agriculture, towards harmonization of LM with the European standards. We suggest creation of a network structure of organic products under the trademark «UkrWay» for analytical and advisory platform of Ukrainian club of agrarian business. We develop the scheme of harmonizing economic interests of land

relations actors through of their capabilities. We design the scheme of forming perspective level of LM through globalization perspectives and internal drivers.

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4.2. REGULATION OF MONOPOLIES IN ECONOMY EXPERIENCE OF THE REPUBLIC OF KAZAKHSTAN[16]

Monopoly is a phenomenon of an economic life of a human society. It represents "prism" through which all fundamental economic problems are considered, and acts as prominent feature of modern social and economic relations. The monopoly has dual character which is shown in the social and economic effect, and is brought it to a society. Therefore the relation to monopoly is ambiguous. Allocating negative consequences from monopoly presence in the market many researchers focus attention on necessities of its full interdiction. But the present stage of development of economic relations, level of technics and technology cause more rational approach to existence of monopoly which is defined by positive economic benefit of their activities. The monopolies possessing, the essential power are necessary for economical achievement of fast rates of economic progress. This statement is caused by that in modern conditions research activity on creation of a new product and new technologies are very expensive process which are presumed only by the large managing subjects possessing solid financial resources. There upon the barriers created by monopoly, give it's certain confidence of profit reception, a part from which it can direct on research and development. About such properties of monopoly spoke J.Shumpeter and J. Gelbrait. Under the statement of J. Gelbrait: «The modern branch from several large firms is excellent means for stimulation of technical change. It is excellently provided for financing of technical workings out. The organization creates strong incentive motives to undertake workings out and to use them. The modern branch it is divided into several large firms, with sizes and profits are proportional to market force, incorporate to provide availability of resources to scientific researches and workings out. The power which does possible for firm to have some influence on the prices, provides that following incomes will not be transferred public by imitators (which did not bear any expenses for workings out) before expenses on workings out can be compensated. In this case the market power protects stimuls to technical workings out». [5]

[16] Authors: Tolkyn Azatbek

Kazakhstan is the country which has carried out transformation from economy of socialist type to socially focused market economy. In the conditions of management system of managing national economy monopolisation has got special scale. The internal resources of monopolisation saved up in this environment cannot be explained within the limits of a neoclassical paradigm of an economic science as they were generated in institutional conditions, opposite to conditions of classical market economy. O.Bessonov defines it as the relations of distributing economy meaning suppression of the private initiative and refusal of the mechanism of a market competition. "Scale effect" was [4] imperative of a management system - the high production concentration ratio provided specific competitive advantages both in the country, and on behalf of all national economy in the world economy. The tendency to concentration of manufacture any time corresponded to requirements of development of industrial system and cause the monopolized structure of economy. The competition between high-concentrated economic structures was in every possible way stopped, the state legally considered the given process as scale threat of integrity and efficiency of functioning of a management system. However, owing to action of economic laws, concentration cannot be carried out infinitely long, there are limits of its efficiency at which achievement return process will begin. As it happened with economy of the USSR and Kazakhstan as to a part of uniform economic system. There was a full-scale display of negative consequences of activity of monopoly that has led to the general stagnation in economy.

Got in the inheritance high-concentrated manufactures have proved to Kazakhstan the inability effectively to function in new market conditions that has caused necessity of their demonopolization and the subsequent privatization. However, owing to character of the organization of market economy at the development present stage again created enterprises which began to unite in the new integrated market structures, but already on the basis of economic feasibility, advantage and efficiency. Many branches of economy of Kazakhstan continue to keep exclusive structure, operate from 1 to 3 large manufacturers.

It is necessary to notice, that the situation of pure monopoly with the boundless power is only theoretical assumption which does not meet in a real life, therefore for the characteristic of monopoly researchers use the term «the dominating company» or «the managing subject occupying a leading position». In world practice the category "leading position" is estimated by two criteria - structure of the market and character of activity. For example, in the legislation of EU the leading position is treated as [3]:

-the situation at which the enterprise possesses the economic power, allowing to prevent an effective competition and to operate, without taking into consideration the competitors, buyers and sellers;

-position at which the enterprise, owing to a market share, owning technical knowledge access to raw and to financial resources, has possibility to establish the price or to supervise manufacture or distribution of a considerable part of production in the relevant market.

In the allocated definitions domination does not assume full monopolisation, and grows out of strategy of the enterprise for achievement of competitive advantages and the corresponding economic gain which has arisen by display of own initiative or as reaction to actions of competitors.

According to the Typical law «About a competition» [8] as a leading position it is necessary to consider «such situation in the market when any enterprise operating or is independent, or together with the several other enterprises, possesses possibility to supervise the corresponding market of the concrete goods or service or group of the goods or services». Such definition specifies in possibility of collective domination or domination of "group of persons".

According to the legislation of Kazakhstan, the dominating is understood «as position of the subject of the market (or several subjects of the market) in the corresponding commodity market, giving to the subject of the market (or to several subjects of the market) possibility to supervise the corresponding commodity market including to make considerable impact on the general conditions of the reference of the goods» [1].

Criterion of reference of the subject of the market to dominating is occupied with it in the market the share which accepts following values:

-«a share of the subject of the market, in the corresponding commodity market, a component of thirty five and more percentage;

-the cumulative share no more than three subjects of the market which posess the greatest shares in the corresponding commodity market, makes fifty and more percent;

-the cumulative share no more than four subjects of the market which posess the greatest shares in the corresponding commodity market, makes seventy and more percent;

-the cumulative share no more than two financial organizations which posess the greatest shares in the corresponding market of financial services, makes fifty and more percent;

-the cumulative share no more than three financial organizations which posess the greatest shares in the corresponding market of financial services, makes seventy and more percent ». [1]

According to the author, only for an estimation of degree of domination of managing subjects in the market is not enough quantitative criteria. So, for example, in the Republic Kazakhstan Law «About a competition» in definition of the fact of domination the quantity indicator «shares in the corresponding commodity market of thirty five and more percent» is solving. [1] Such position can lead to a situation at which the subjects of the market which do not posess the big share of the market, but have possibility is essential to influence trade conditions in the market, can and not to be recognized by dominating. And on the contrary subjects of the market not possessing the essential market power, but having a share in 35 % can be recognized by dominating. Owing to such omissions business the economy environment

becomes even more uncertain with the raised risk and restriction of possibility of expansion of business, and without large business the national economy cannot be stable.

Therefore, for increasing of an overall performance of all economic system, it is necessary to bring to the legislation on a competition respective alterations under the account of a complex of factors of domination of the separate subject in the market of certain production which concern:

-features of structure of the market - presence and the size of other subjects in the given market, their market shares;

-character of demand and possibility to establish the price unilaterally;

-degree of influence on trade mark consumers;

-character of a competition in the market and probability of occurrence of new competitors;

Presence of the essential market power.

In the legislation of Kazakhstan it is necessary to concretise signs of domination of the managing subject in the market, having specified in addition to an occupied share still such condition as, for example, an invariance or susceptibility to insignificant changes of a share of the subject in the commodity market. For example, in Russia in cases when the subject of the market supervises from 35 % to 50 % of the market, for its recognition dominating presence of following additional factors is required:

1) an invariance or susceptibility to insignificant changes of a share of the subject in the commodity market;

2) the relative sizes of shares of competitors in this market;

3) access possibility on this market of new competitors.

There is an original gradation of subjects on degree of domination which assumes application of corresponding measures concerning degree of their domination in Europe. Such groups of the domination, has defined on the basis of an occupied share in the market, act: the group, certainly not dominating subjects - a share to 25 % of the market, group certainly dominating - a share of the market above 70 %. All other positions are estimated taking into account various additional factors: 25-40 % - are visible, not dominating; 40-50 % - are possible, dominating; 50-70 % - are visible, dominating. [7] such gradation of chances of domination of subjects of the market allows to concretize methods of antimonopoly influence applied to them, with a view of not assumptions of strengthening of the exclusive power and simultaneously, maintenance of efficiency of their functioning.

For an establishment of the fact of domination the Antimonopoly agency of Kazakhstan carries out the analysis of the commodity markets at which degree концентрированности the market is defined and dominants come to light. So, according to antimonopoly department, in economy of Kazakhstan monopolized and high-concentrated markets throughout long time there is a railway branch, a fuel and energy complex and telecommunication sector. These commodity markets keep

stability of a share of domination of subjects of the market from 60 to 100 %. [9] Dominating subjects of the market are brought in the State register of subjects of the market occupying dominating or a monopoly position (further the Register). Dynamics analysis supplement the given Register testify that within last three years, the tendency to growth of quantity of dominating subjects of the market remains. In the given Register in 2007г. 754 subjects, in 2008г consisted. – 969 subjects. But in October, 1st, 2009 in the Register, 944 subjects consisted of them in sphere of a fuel and energy complex - 249 subjects; in transport sphere - 165 subjects; in communication sphere - 34 subjects; in sphere of other branches - 495 subjects; in sphere of the financial markets - 1 subject. More than half of the subjects consisting in the Register, concern a category of small monopoly, i.e. dominate at local level of separate areas and cities; an order of 20 % of the companies dominate at national economy level. The largest dominating subjects in sphere of oil and gas sector are joint-stock company "NC" KazMunajGaz », Open Company" Tengizshevroil ", the Chinese National Oil and gas Corporation (CNPC). In a mountain-metallurgical complex joint-stock companies «Akselor Metall Temirtau» which in aggregate supervise a share of the market of an order of 77 % are dominating« ENRC "," Kazakhmys Plc ».

Leading position strengthening is promoted by economic concentration, therefore definition of its level and the control over it acts as a priority of antimonopoly body of Kazakhstan. The control over processes of economic concentration is expressed in preliminary reception by subjects of the market of the consent of antimonopoly body on realization of transactions in a case, when:

-cumulative balance cost of actives reorganization subjects of the market or the purchaser, and also the subject of the market, the action (participation shares, shares) with a vote in which authorized capital have got or their total volume of realization of the goods for last fiscal year exceeds two million multiply size of a monthly settlement indicator;

-one of the persons participated in the transaction, the subject of the market occupying dominating or a monopoly position in the corresponding commodity market is;

-cost of actives or size of own capital of the financial organization exceeds the sizes established by antimonopoly body together with the state body, carrying out regulation and supervision of the financial market and the financial organizations.

At aspiration to carry out economic concentration it is necessary for subjects of the market to submit to antimonopoly department the petition on which data on manufacture volumes, on realization of the goods in Republic Kazakhstan are without fail applied, about volumes of export and import of the goods of the subject of the market (group of persons), including the forecast for three years forward. Antimonopoly department spends careful check of possible consequences from realization of economic concentration and on the basis of the received results the decision on the consent or refusal makes.

As separate category of monopolies in economy of Kazakhstan the state monopolies and the dominating foreign companies act. The state enterprises can occupy exclusive or a leading position in the market, in connection with position of the legislation which have given to the state the right to limit a competition in those fields of activity in which realization of the goods in the competitive market can make negative impact on a condition of the constitutional system, national safety, protection of a public order, the rights and freedom of the person, the health of population. Manufacture, sale, purchase or using such goods is the state exclusive right. Therefore, in case of the state monopoly acting as the dominating subject in the market, the certain set of methods of its regulation which can be expressed in prohibition to it is required:

-to make the goods which are not concerning sphere the state monopoly, except for the activity technologically connected with manufacture of the goods;

-to own actions (shares of participation in the authorized capital), and also otherwise to participate in activity of legal bodies;

-to concede the rights connected with the state monopoly.

Similar strict measures promote restriction of possibilities of the state monopoly to abusing the position. As an example of abusing such situation with The state municipal enterprise "Almatyzher" acts. Akimat of Almaty have been brought in charter of the state municipal enterprise "Almatyzher" additional kinds of activity which have given it possibility to participate in the competitive market. These actions have allowed The state municipal enterprise "Almatyzher" to carry out mediatorial functions for compensation in volume of 5 % and have led to reception of unreasonable advantages in enterprise activity, by elimination and competition restriction. Almost same situation has developed with State institution «Department of ground relations of the city of Ust Kamenogorsk». It gave advantages to concrete subjects of the market by quantity ground constructional projects which have put them in exclusive position in relation to other subjects of the market.

The case when as the dominating company in national economy the foreign company or the company with foreign participation acts, besides abusing the position is separate. For example, the group of Chinese companies CNPC is the subject of the large integrated multinational corporation of a world scale that oil extracting gives the chance to it using to dominate all advantages of the integrated structure in national economy of Kazakhstan in sector. Abusings CNPC are expressed in its disinterest in development of oil refining and thereupon restriction of deliveries on Shymkent oil refining factory (ORF). ORF does not provide full loading of the capacities in connection with deficiency of deliveries of raw materials, let alone modernisation of the equipment and release of a high-quality product. Similar abusing CNPC carries out during the periods of sharp growth of demand on inflammable lubricants that conducts to strong increase of the prices for them. In last large increase of the prices for PETROLEUM PRODUCTS in Southern Kazakhstan in October-November, 2009 of stabilization of a situation it was possible to achieve

only as a result of intervention of the state which through National company "KazMunaiGaz", has provided delivery of raw materials on Shymkent ORF that has allowed to liquidate deficiency inflammable lubricants for short time. Whether action of the national company has been made to the detriment of its economic interests, or quite profitable strategic decision it is not known. The foreign investor who has created the preconditions of a price agitate has not felt any consequences.

The fact of presence of the dominating subject in the market is not the negative phenomenon as experience shows high enough efficiency of activity of such subjects and positive influence from their presence on economy as a whole. But domination acts as that border behind which supervision over processes of concentration and behavior of subjects of the market possessing the essential market power begins.

Abusing a leading position renders the greatest negative influence on efficiency of functioning of economy. Those actions or inactivity of subjects of the market occupying dominating or a monopoly position which have resulted admit «or can lead to restriction of access on the corresponding commodity market, not allowed, to restriction and elimination of a competition and (or) restrain legitimate rights of consumers». As a whole most often applied abusing can be divided into four groups, depending on used methods and the pursued purposes as which abusing in pricing sphere act, by means of overestimate of understating of the price and representation of price discounts; abusing by means of realization of vertical restrictions; abusing presented by refusal in realization of delivery of the goods; abusing in the form of discrimination. According to antimonopoly agency in Kazakhstan of an order of 51 % of all infringements of the antimonopoly law revealed in 2009, it was necessary on abusing a leading position. Among them of 66 % it is necessary on infringements of managing subjects of the fuel and energy complex acting most high-concentrated as sector of economy.

Presence of abusing by a leading position from subjects of the market causes necessity of suppression and inadmissible such behavior from the state. In this case, active inclusion in market process, using as the tool of the policy an establishment of legislative frameworks and restrictions on the ways of dominating subjects which are not giving the chance to them to apply the position to the detriment of associates should become strategy of behavior of the state concerning the dominating subjects of the market abusing the position.

The dominating subject in the market repeatedly abuses the position is possible and does not react to instructions of antimonopoly body about the termination of abusing. In this case antimonopoly department can take measures on compulsory demonopolization of the subject of the market, by means of division of the subject and allocation from its structure of structural divisions. A necessary condition for acceptance of the similar decision is:

-absence of technologically caused interrelation of structural divisions;

-existence of possibility of independent activity in the corresponding commodity market for the legal bodies created as a result of reorganization.

The spent policy of demonopolization should be based on principles of "rationality", a rationality and increase of efficiency of activity of managing subjects. According to a principle of "rationality" of action of the managing subject it is estimated from the point of view of encouragement or competition restraint. Demonopolization should pursue the aim of the creation of the effective competitive environment in economy that causes necessity of careful studying of a situation in the market and definitions non-alternative demonopolization as means of restoration of a competition. After all as a result of division of the managing subject the probability of remains that its competitors can find the essential market power also promoting their domination in the market.

The rational principle assumes carrying out of an antimonopoly policy which concerning dominating subjects on purpose do not interfere with industrial progress and estimates activity of managing subjects proceeding from the basic thesis, that: «High profitability of the large company on the size does not grow out of excessive domination in the market or the exclusive power, and follows from the high efficiency provided with a positive effect of scale, effect of a variety, long experience of stay in the market». Even if there is a statistical communication between costs of concentration and profitability, this communication should be estimated dynamic, instead of static way. « It is obvious, that there can not be a competition without competitors. But it doesn't seem to people so obvious, that the competition also is impossible, if it is forbidden to competitors to undertake the actions which purpose is the increase in their share in the market ». [6] On belief of the English economist of M.Besta:« Pursuing associations and interfirm agreements, the state in essence loses possibility effectively to operate antimonopoly process. Interfirm cooperation suppressed by the legislation all the same develops, but in the companies of less effective ». [2]

Demonopolization promotes activization of the competition, but at its rash application concerning industrial complexes is fraught with negative consequences. It is possible to carry them: liquidation of advantages of cooperation; rupture of economic communications; growth transaction costs; easing of research base, owing to ability loss to conduct research and developmental works; decrease in concentration of the manufacture, conducting to efficiency easing. These consequences are actual, as the large economic complexes generated in centralized economy, have the features and represent the uniform industrial-economic associations formed on the basis of deep cooperation of specialized manufactures. Use at into smaller units such associations not economic efficiency reasons, and arrogant aspirations of heads of industrial and economic links and political issues, lead to certain negative consequences in economy - control loss over a complete industrial-distributive cycle.

Owing to rupture of economic communications in the absence of the adjusted provision-marketing network one managing subjects face a problem of maintenance of manufacture by necessary resources, and others - with a sale problem, that, in turn

conducts to compression of demand for production of industrial appointment and decrease in economic activity. As a result of narrow of industrial base concentration of financial resources and possibility of maneuvering by them, leading to deterioration of financial stability of the managing subject decreases. Autonomism of intermediate links causes strengthening of exclusive displays in the form of price dictatorship, and autonomism of scientific divisions conducts to a situation when manufacture loses scientifically-experimental base.

Control of activity of those exclusive structures should become the priority purpose of antimonopoly department, dismiss which is not expediently and it is not obviously possible. As the core methods of indirect regulation which should be carried out in following directions should be used:

- Creation of possibilities for course in economy of any processes promoting demonopolization: granting of as much as possible wide rights on initiative, going "from below", breaking up into smaller units manufactures, to the creation of the new enterprises decentralized tint of the capital;
- Stimulation of any processes directed on occurrence of economic subjects with equally directed by opposite interests at which the aspiration to rivalry prevails over aspiration to association. For this purpose the combination large and a small-scale production, the enterprises with different patterns of ownership and managing is necessary.

Influence on the subject of the market should induce the carrier of the exclusive power to such line of action as though there was a full competition. It is necessary to admit the general business rules developing in the markets in the course of execution of laws, but not conditions of the conclusion of transactions which deviate legislative regulation to the detriment of one of the parties in the contract.

Thus, the priority in realizations of a policy of regulation of dominating subjects in economy of Kazakhstan should be prohibited abusing the position from the party leaders, to regulation by means of demonopolization in cases when application of other levers is impossible, to strict following to principles of a rationality and rationality at use of methods of antimonopoly regulation.

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4.3. GENERAL PROBLEMS OF LIVESTOCK SUSTAINABILITY IN REPUBLIC OF KAZAKHSTAN[17]

Since independence, the Republic of Kazakhstan has achieved significant results in the agricultural sector: there is a constant increase in production based on market relations, increases productivity and labor productivity, updates fixed assets and infrastructure industry, has achieved self-sufficiency of basic food products. There was a significant increase in exports of cereals, oilseeds, fishery products.

In 2014, the share of agriculture in gross domestic product (GDP) was 5.1%, labor productivity employment in agriculture for the period 2005 to 2014 changed from 304.2 thousand tenge per employee to 498 thousand tenge, with an average annual growth rate of 9.3% per year, about 7.48 million people lived in the countryside, or more than 45% of the total population of Kazakhstan.

Currently, new trends formation in the world agricultural economy and demographics takes place, there is a development of the regional integration processes, global climate changes occur. Kazakhstan joined the Customs Union (CU), plans to join the World Trade Organization (WTO).

However, despite the positive results in general, there is a low level of productivity in some areas of the industry, the imperfection of the technologies used. Small-scale production did not allow conducting intensive agricultural production on the basis of ensuring the fullest possible utilization of material, labor and other resources to comply with environmental requirements. These factors reduce the competitiveness of domestic agricultural sector, which in the WTO and CU can lead to the dominance of foreign products imports, displacement of local producers from the market.

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Population growth occurs with an intense increase in food consumption and changes in consumption patterns towards better quality products. The head of state has repeatedly stressed the role of agriculture for food security of the country, employment growth and economic development of the republic, included in the President of the Republic of Kazakhstan Nursultan Nazarbaev's Messive dated 27th of January 2015, «Socio-economic modernization - direction of development of Kazakhstan».

In the changed conditions of the external and internal environment, in connection with Kazakhstan entry to WTO and CU, there is need to use new tools of government regulation and industry modernization. A new development program for agro-industrial complex (AIC) of the Republic of Kazakhstan was developed [1].

Republic of Kazakhstan AIC gross production volumes show a steady upward trend in the level of 1,121 billion tenge in 2010 to 2,256.6 billion tenge in 2014, and processed products from 464.1 billion tenge in 2010 to 747.4 billion tenge in 2014. However, in 2015 there was a decline from 2,286.0 to 1,999.0 billion tenge, the share of crop production was 48.7% (90,165.3 million tenge) and livestock production was 50.7% (93,730.8 million tenge) [2].

Livestock production decline compared with 2014 levels 27.4% happened due to the decrease in the volume of cattle production (dairy breeds by 42.9%, meat cattle and other species by 39.7%), swine by 16.7%, poultry by 1.4%, horses by 0.1%. At the same time, there is 19.0% growth of camels breeding products, 2.1% of sheep and goats products (Table 1 and Table 2).

Table 1. The volume of gross agricultural output

Specification	2010	2011	2012	2013	2014	2015
Volume of gross agricultural output in million tenge, including:	1,089.4	1,404.5	1,641.4	1,442.6	2,286	1,999.0
Crop production	608.4	770.2	932.3	662.6	1337.2	981.2
Livestock products	476.3	628.7	703.2	774.1	942.1	1,011.2
Agricultural services	4.7	5.6	5.9	5.9	6.5	6.6

Note. Compiled by the authors according to the source (Statistical book of Kazakhstan Agency for Statistics, 2015)

Importantly, the reduction in the number of cattle is observed only in personal farmsteads. Agricultural companies and farms show a steady growth by 6.8% and 8.4%, respectively [3].

Production of meat (slaughter weight) and eggs remained at the level of the previous year and amounted to 937.6 thousand tons and 3,700.9 million. Due to the reduction of cattle flock, milk production decreased by 3.0% (5,186.3 thousand tons). At the same time, the production of meat (slaughter weight) in agricultural formations

in 2014 increased by 5.5%, milk by 10.5%, eggs by 0.4% and wool up to 1.1%. According to regional local government offices, agricultural producers roughage supply makes 114.5% (harvested roughage is 23,047.6 tons when 20,131.2 thousand tons is needed), silage security is 20.6% (834.1 tons, while 4,045.7 thousand tons is needed), concentrated feed is 137.2% (6,067.4 thousand tons, while 4,423.5 thousand tons is needed).

Table 2. Index of gross agricultural output physical volume

Specification	2010	2011	2012	2013	2014	2015
Index of physical volume of gross agricultural output (%) including:	108.5	93.1	114.6	88.3	126.8	82.2
Crop production	113.3	84.3	124.8	77.4	158.9	72.4
Livestock products	103.8	104.2	102.3	102.6	99.6	96.2
Agricultural services	95.4	114.1	100.1	95.2	101.6	93.0

Note. Compiled by the authors according to the source (Statistical book of Kazakhstan Agency for Statistics, 2015)

For 5 years, the average gross production of key refined products amounted to more than 650 billion (Table 3).

Table 3. Manufacturing of processed products (billion tenge)

Index	2010	2011	2012	2013	2014
Food production	559.8	615.1	629.8	695.2	747.4
Processing and preserving of meat and production of meat products	36.5	62.4	69.7	77.6	87.6
Processing and preserving of fish, crustaceans and mollusks	5.9	7.0	7.3	8.0	7.8
Processing and preserving of fruit and vegetables	18.4	69.6	69.6	68.3	72.6
Manufacture of vegetable and animal oils and fats	43.7	52.0	42.8	85.6	64.1
Dairying	43.9	101.5	103.5	117.3	125.6
Manufacture of grain mill products, starches and starch products	69.0	133.3	128.0	120.0	150.7
Manufacture of bakery and pastry	-	-	115.3	120.1	126.9
Manufacture of other food products	91.0	181.6	86.1	90.9	101.4
Manufacture of ready animal feeds	6.2	7.6	7.4	7.8	10.8

Note. Compiled by the authors according to the source (Statistical book of Kazakhstan Agency for Statistics, 2015)

Main share in the production of foodstuffs and beverages is occupied by feed processing (31.1%); meat processing (9.4%), milk processing (10.2%), fish processing (3.2%), fruits and vegetables (2.2%), fat and oil industry (2.6%), beverages (9.5%).

There was an increase in the production of canned vegetables, pasta, rice, juice, margarine, chocolate, confectionery, vegetable oil and meat products, as well as all types of dairy products in 2014.

In 2014, exports of refined products amounted to 1,001.8 million, which is 3.4% more than in 2013. Exports are mainly carried out in rice, dairy products, meat preserves, processed milk, confectionery, canned fruits and vegetables.

According to the Agency of the Republic of Kazakhstan on Statistics in 2014, private investment in fixed assets increased by 4.4% (from 27.3 to 28.5 billion tenge), foreign investment by 3.8 times (from 102 to 384.9 million tenge).

However, despite the annual growth, recycling rate of basic agricultural commodities remains low: meat - 24%, milk - 34.4%, fruit and vegetables - 6.9%.

Capacity utilization of the processing enterprises was: production of sausages - 28.4%, processed milk - 46.8%, flour - 36.8%, fresh bread - 43%, pasta - 51 %, vegetable processing - 27.8%.

Agriculture of Republic of Kazakhstan is integrated into the global food markets and is actively involved in shaping the balance of trade and occupies 17.6% of total exports and 15.3% of total imports (Table 4).

However, Kazakhstan made imports in many kinds of processed agriculture products, so there is a high level of import dependence on fruits and vegetables, processed meat and milk and dairy products.

In 2014, agriculture employed 2,196.1 thousand people (26% of total employment), hired - 604.8 thousand people (27.5% of employment in the sector), self-employed - 1,591.3 million people (72.5% of employment in the sector) (Kantarbayeva, 2010).

Acreage in the Republic of Kazakhstan in 2014 amounted to 21,083.0 thousand hectares. Wheat took about 65.6% (13,848.9 ha) of the acreage. Crops in 2014 allocated 76.5% (16,125.9 hectares) of farmland. The number of livestock at the beginning of 2015 was 5.7 million big animals, 18.1 million small animals, 1.6 million horses, 1.2 million pigs, 0.17 million camels and 32.9 million birds [4].

Main internal and external markets of agricultural complex of the Republic of Kazakhstan

There is a great variety of opportunities for markets development in the Commonwealth of Independent States. The analysis identified the following promising sales markets of Kazakhstan production. Kazakhstan wheat market in countries of Central Asia, European Union and Afghanistan can take more than 10 million tons in grain equivalent (wheat, flour, and products of wheat deep processing) in 2020 considering the rapid growth of Central Asian and Afghanistan population. One of the key tasks is to maintain a leading position in export of flour. The problem

is that some importing countries are developing their own capacities for the production of flour. Export of wheat deep processing products (starches, gluten, etc.) will be 0.3-0.5 million tons in case of currently launching projects success.

Table 4. Balance of import/export products in Kazakhstan in 2014 (thousands USD)

Product	Exports, average for 2010 to 2014 (thousands USD)	Imports, average from 2010 to 2014 (thousands USD)
wheat	956,676	4,258
cotton fiber	110,051	12,773
barley	93,904	17,803
fish	79,391	33,127
vegetables	35,466	52,514
rape	17,642	1,415
rice	16,946	13,066
flax	15,438	222
milk	2,339	132,126
corn	1,595	1,182
apples	1,527	37,628
sunflower	1,510	13,208
soybeans	1,272	3,363
oat	929	17
small cattle meat	866	306
poultry	797	108,009
buckwheat	368	776
cattle meat	298	22,734
potatoes	192	20,504
rye	163	80
pork	135	11,183
horse meat	-	6,036

Note. Compiled by the authors according to the source (Statistical book of Kazakhstan Agency for Statistics, 2015)

Russian Federation imports about 1 million tons of apples, and Kazakhstan can supply up to 400 tons in 2020. The internal market of Kazakhstan in 2020 will be about 600 thousand tons of apples, including 400 thousand tons of processed apples. The aim is to complete self-provision for this type of product and the recovery of traditional markets of Kazakhstan apples in the eastern part of Russia. Internal market of vegetable production in 2020 will be about 3 million tons. Local producers can provide up to 100% of internal demand. Domestic production of canned vegetables in 2020 is predicted to increase up to 85 thousand tons. Potential market of beef import of the Russian Federation is more than 600 thousand tons per year. Kazakhstan will be able to deliver about 60 thousand tons of chilled beef in 2016. In 2020 the internal market of beef will be about 500 thousand tons, 200 thousand tons lamb and over 120 thousand tons of horse meat, which will be provided by domestic production. Internal

market of processed meat in 2020 will be about 115 thousand tons and more than 85 thousand tons of other products. Local production can reach about 100 thousand tons of sausage and more than 60 thousand tons of other products. Internal market of imported chilled red fish (salmon) in Russian Federation is about 75 tons per year, from which Kazakhstan can take up to 1.9 tons in 2020 it also can be exported to European Union and other countries. Internal market for fish and fish products will be about 196 thousand tons, local production of which can reach about 84 thousand tons.

Domestic dairy market in Kazakhstan in 2020 will be about 1.6 million tons of milk, local production of which could reach about 1.5 million tons.

Demand for compound feed for livestock will grow up to 3 million tons per year. Kazakhstan has reached self-provision at the rice market, there is potential to increase export of rice to CIS countries up to 100 thousand tons in 2020, subject to the resolution of key industry issues. There is a problem in the area which is suitable for cultivation of cotton therefore a significant increase in production and export is also not possible. The market of fine wool production may increase up to 6-8 tons it is also possible to increase recycling of semi-coarse and coarse wool for several thousand tons per year.

Livestock is an important sector of agriculture which accounts for over a half of its total production. Meat and meat products are integral elements of the strategic food security structure. Indicators of livestock products consumption per capita are, in fact, the main indicators of the nation's welfare.

Livestock provides valuable raw materials for the industry: wool, leather, Karakul, etc. Livestock industries' development allows using labor and material resources in agriculture the whole year round. Livestock industries consume garden wastes, and valuable organic fertilizers, such as manure and slurry are produced.

An important task for the livestock development is improving product quality. This is facilitated by selection methods and evidence-based standards of the animals feeding and watering, improving farms' technical equipment and technological processes full mechanization. Common tasks that need to be addressed in the livestock industry are to ensure the growth of productivity and livestock, and on this basis, to increase production of high quality products at the lowest cost of labor and resources.

Livestock development is socially important, as real GDP growth and rising incomes depend on the level of agricultural products production and export. Currently the livestock accounts for more than 52% of the value of gross agricultural output in Kazakhstan. To date, we have a fairly disappointing statistics on meat imports, especially poultry meat, where the import share is over 60%. Beef imports are growing: in 2015 it amounted to more than 20 thousand tons, while four years ago it was about 11 thousand tons. For the past five years the share of horsemeat imports has grown. So, if in 2010 there was no horsemeat import, in 2015 it amounted to 5.8 thousand tons.

Meanwhile, a legal framework for livestock industry development in a market economy was established. The Parliament has adopted all the major legislative acts in this sphere, including the laws of the Republic of Kazakhstan «On state regulation of agriculture and rural areas», «On livestock breeding», «On Veterinary Medicine», «On Selection Achievements Protection» and others. Livestock industry industrial development indicators are shown in Table 5.

Table 5. Livestock development indicators

Specification	2010	2011	2012	2013	2014	2015
Cattle (thousands heads)	5840.9	5991.6	6095.2	6175.3	5702.4	5690.4
Sheep and goats (thousands heads)	16080.0	16770.4	17369.7	17988.1	18091.9	17633.3
Pigs (thousands heads)	1352.7	1347.3	1326.3	1344.0	1204.2	1031.6
Horses (thousands heads)	1291.1	1370.5	1438.7	1528.3	1607.4	1686.2
Camels (thousands heads)	143.2	148.3	155.5	169.6	173.2	164.8
Poultry (millions)	29.5	30.1	32.7	32.8	32.9	33.5

During the period from 2010 to 2015 the number of cattle and swine decreased by 2.6% and 31.1%, while there was a growth of sheep and goats by 8.8%, camels by 13.1%, horses by 23.4% and poultry by 11.9%. In 2015 compared with the previous year decline in the number of cattle was 0.2%, sheep and goats by 2.5%, camels by 4.9%, pigs by 4.3%, while the number of horses increased by 4.9%, poultry by 1.8%.

The decline in the number of farm animals was in personal farmsteads, while agricultural companies are experiencing high growth in the number of livestock. For example: agricultural companies in the Akmola region have cattle growth by more than 25%. In the West Kazakhstan region the number of cattle in agricultural companies has grown by more than 20%.

Figures for livestock production are shown in Table 6. The data given in Table 2 show that during the study period of 2010-2015 milk production in Kazakhstan decreased by 4.6% and there was an increase in meat production by 10.2%, eggs by 27.5% and wool by 11%.

Table 6. Livestock production during 2010-2015 in Republic of Kazakhstan

Specification	2010	2011	2012	2013	2014	2015
Meat (tons)	838.7	874.2	896.3	937.4	939.4	934.1
Milk (tons)	5,073.2	5,198.0	5,303.9	5,381.2	5,232.5	4,851.6
Eggs (millions)	2,664.2	2,989.1	3,306.4	3,720.3	3,718.5	3,673.4
Wool (tons)	34.2	35.2	36.4	37.6	38.5	38.4

In according with Kushnir et al. (2014) the main problems of the livestock development are [5]:

a) Small-scale production which leads to the absence of products trade volume for processing capacities utilization, as well as seasonal changes in product prices. Conducting selection and breeding is impossible as well.

b) Low level of the compound feed industry development and low proportion of forage crops in cropping patterns which leads to poor food reserves and unbalanced feeding of farm animals.

c) Lack of working capital for the purchase of feed. In the connection with that the farm owners are not able to provide feed stocks in advance and buy them at prices from 20 to 40 thousands tenge depending on the season and weather conditions.

d) Low level of livestock breeding and selection in most breeding farms;

e) Poor physical infrastructure of livestock farms which does not allow carrying out technological process of livestock management and production at an appropriate level;

f) Grassland degradation and desertification due to non-compliance with rotational grazing and rangelands watering system disorders;

g) Farmers' poor knowledge in livestock management, reproduction, treatment and livestock production.

In general, the potential of the agrarian sector in Kazakhstan allows building the system opposed to all these challenges. Development programs to deal with these problems were created, upon completion of which it is expected to eliminate all negative factors.

Nowadays a set of target-oriented mid-term programs have been developed. One of such programs is the project «Development of the cattle meat export potential of the Republic of Kazakhstan for the years of 2014-2020» implemented by the JSC National Holding «KazAgro». Prerequisites for establishing a program to develop the export potential of cattle meat was the situation that currently exists in animal husbandry. Over the past 20 years the number of cattle has decreased from 10 to 6 million. At the same time Kazakhstan has a very favorable market conditions, pricing environment and natural potential.

Kazakhstan has such natural competitive advantages as favorable climatic conditions, pastures (180 million hectares), proximity of intensive markets. In addition, livestock is original indigenous craft.

Development of beef cattle industry export potential will enhance its economic attractiveness and agribusiness diversification. So, if in 2012 18% of the total of bovine and small cattle was in agricultural companies, and only 82% were owned by the farms, in three years this figure has changed from 18% to 28% and from 82% to 72%. In some regions cattle owned by farms makes 60%.

The Project's main task is to create a solid foundation for cattle breeding industry sustainable development. As part of its implementation reproductive cattle base is improving the genetic potential of livestock productivity, and transfers to innovative technologies are conducted.

As of 1st of January 2013 livestock breeding base is represented by 581

enterprises from which 557 of them are engaged in cultivation and sale of pedigree cattle farm animals (42 breeding plants and 515 breeding farms).

24 subjects are involved in the field of livestock breeding production and sale of producers, including two breeding and 22 distributional centers.

Breeding cattle livestock has increased by 3.2 times in 10 years and as of 1st of January 2013 were 468.5 thousand, sheep increased by 4.2 times up to 2112.2 thousands, pigs by 6.5 times up to 197.1 thousands, horses by 11.4 times reaching 115.4 thousands, camels by 3 times up to 17.4 thousands, poultry by 10 times reaching 3935.6 thousands. Pedigree beef livestock is improved thanks to using breeding bulls which allows bringing livestock productivity to world standards [6].

However, livestock in the republic is still characterized by low genetic potential.

As of 1st of January 2013 the proportion of cattle breeding country amounted to 8.2% of the total livestock, sheep - 13.8%, pigs - 19%, horses - 7%, camels - 10% and poultry - 11.7%.

The work on bringing amendments and additions to the legislation in the field of livestock breeding is conducted currently in order to improve and increase the efficiency of livestock breeding. It provides creation of national chambers in sheep breeding, similar to creating national chambers of cattle breeding.

Currently, the Ministry of Agriculture of the Republic of Kazakhstan is implementing two budget programs within the funds allocated from the state budget in the livestock:

«Target current transfers to regional budget, budgets of the cities of Astana and Almaty to support livestock breeding». In 2015, 10,315.6 million tenge was allocated from the state budget for implementation of this budget program.

«Target current transfers to regional budget, budgets of the cities of Astana and Almaty to subsidize productivity and quality of animal products increase». In 2015, 21,138.7 million tenge was allocated to implement this budget program from the national budget.

It is planned to import 72 thousand breeding cattle, restocking peasants and farmers with 224 thousand cattle and creating 150 thousand feedlots for at the account of the «KazAgro» credit resources till 2016. It will allow Kazakhstan to create all the necessary conditions for building a strong foundation for its own food security and exports of domestic products to traditional and new markets.

In 2013, state support for the livestock industry was conducted in the following directions:

- funding the cost of breeding livestock. The total amount of budget is 10.8 billion tenge;
- funding increase of productivity and quality of livestock products. The total amount of budgetary funds is 28.0 billion tenge.

In 2013 new forms of state support within the branch program «Agribusiness 2020» were introduced, including:

1) Sponsorship for the reimbursement of sheep raising selection and breeding

costs;

2) Subsidies to purchase purebred young cattle in the amount of 118 thousand tenge per head.

3) Increasing the credit limit under the «Sybaga» program up to 300.0 thousand tenge per head of purebred breeding stock from Belarus, Russia and Ukraine.

Within the frameworks of the project it is planned to create infrastructure for industrial production of beef with 150.0 thousand networking feedlots, farms for raising calves reproduction in sufficient quantities, as well as creating a network of farms-breeders with imports of 70.0 thousand cattle for raising bulls with high breed qualities.

Feedlots with a total capacity of 17.7 and 17.5 thousand feedlots were built funded by «KazAgro» and at their own expense during the period from 2014 to 2015 respectively.

However, the implementation of the given project areas is currently being promoted slowly. Most areas hardly reached their performance.

At the same time in 2013 it is planned to create a network on 30,400 feedlots. Agricultural companies plan to create 20,200 feedlots.

In 2013 within the frameworks of the project 509 animals were imported while the yearly plan of delivery was 14 thousand cattle breeding animals of foreign selection.

In order to monitor and control the implementation of the project «Development of meat export potential», the Ministry developed a mechanism of ranking mayors (akims) based on the number of stock involved in the process of breeding transformation.

The following measures to address the problems and sustainable development of animal husbandry must be implemented:

- Development and implementation of master-plans to develop the livestock industries consistent with industry public associations, with step by step measures for regions and years, to achieve these goals;
- Adoption of the Resolution of the Republic of Kazakhstan Government on comprehensive action plan for implementation of the Master - plans for 2014-2020 and its implementation;
- Monitoring programs implementation to rank akims of all levels and improve efficiency and accountability for the implementation of the program at all levels of government;
- Improving the legal framework in the field of livestock husbandry and land;
- Gradual increase in funding the sector aimed at stimulating investment in the industry;
- Subsidizing the cost of investment projects in priority sectors of the livestock breeding, in order to ensure their investment attractiveness;
- Create fodder supplies on the basis of JSC «Food Corporation» to promptly solve the issue of providing fodder development mechanism of futures contracts for

forage crops;

- Development of the institute of public organizations and associations in order to reduce government influence on the regulation of breeding;
- Creating the conditions to encourage insurance companies to develop insurance institute of farm animals;
- Strengthening veterinary and sanitary control in order to prevent the emergence and spread of dangerous infectious diseases of farm animals.

Further development of the livestock industry of the republic through the implementation of the approved State programs, as well as the Messive of the President of Kazakhstan will increase the efficiency of domestic competitive and qualitative livestock products, in accordance with international standards, as well as to form a balanced production and sales markets and thereby ensure food security of the country.

Due to the execution of all programs of the government of Kazakhstan livestock industry will significantly advance the infrastructure and increase its productivity. The creation of the industry on an industrial basis helps achieve the desired results in the production, improve the world ranking in this area and develop exports.

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4.4. PERSPECTIVE OF ECONOMIC INTEGRATION BETWEEN CHINA AND KAZAKHSTAN[18]

Look around today's world, economic globalization and regional economic integration has become a trend. Countries around the world have started to develop their own regional economic integration, in order to better respond to the challenges of economic globalization and further safeguard their own national interests. Actively strengthen the Sino-Kazakh economic and trade cooperation is a wise choice to adapt to the times. Since the establishment of diplomatic relations between the two countries is emerging broad consensus and interests . With the establishment and development of the Sino-Kazakh bilateral strategic partnership, based on the background of economic globalization, from the height of the international political and strategic development pattern to look at the development of the Sino-Kazakh economic and trade relations is the objective reality of the inevitable.

Political relations between China and Kazakhstan are successful: since independence, the two countries have settled old disputes about their common border and established close political contacts. The two nations signed their first boundary agreement in April 1994, and their second supplementary boundary agreement in July 1998 to mark their 1,700 km shared border. Chinese and Kazakh officials meet frequently to discuss bilateral issues and, for Kazakhstan, "developing good neighborly relations with China is a top priority". Today, both share membership of the Shanghai Cooperation Organization and other regional groups committed to promote political cooperation and security.

Economic growth of China: China has shown a stunning example of economic growth based on prudent and sound economic policies. In 2014 China became the largest economy in the world by GDP by PPP. China's share in global GDP is 16.6%, the United States occupies 2nd place (16.06% of world GDP). China's economy has a great impact on all the countries of Central Asia, including Kazakhstan. In the near future, this influence will only grow due to ongoing investment, trade and infrastructure projects.

In recent years Kazakhstan has become an important actor in regional international relations in Central Asia. The country's improvements have been underscored by international observers in many occasions. It is undeniable that compared to the rest of the region, Kazakhstan shows much higher levels of development. In purely macroeconomic terms, Kazakhstan's economy is the largest in Central Asia and has shown very high growth levels for many years, recovering very fast when hit by the world economic crisis. In broader terms, Kazakhstan's success is underscored by the fact that it is the only country in the region to be ranked among states with a high level of Human Development.

[18] Authors: Berzhanova Aigul, Serzhan Balgyn

It should therefore be remembered that no matters how impressive Kazakhstan's achievements might seem, there is room for improvement: the country still needs help from its neighbours and is continuously and dynamically looking for opportunities to consolidate its growth through economic cooperation. This makes Chinese-Kazakh relations particularly important not just for the overall situation of the trade balance between the two countries, but, in a broader sense, also for the very sustainability of the "Kazakh path", and for Central Asian stability in general.

Kazakhstan and China already enjoys very favorable conditions for their cooperation because of their developmental similarity. Both have gone through a long and arduous reform process aiming to make bold, albeit difficult, political adjustment and phasing in market economy. Both envisage to further reform their economic and trading system by embracing global rules through WTO accession. And both strive to bring more prosperity to their peoples by becoming a more developed country, Kazakhstan through its "2050 Strategy" and China through its "China Dream". Such similarity, together with their historical good relations and personal friendship between President Nazarbayev and Chinese President XI Jinping and his predecessors, set the cooperation between the two countries on a mutually confident and sustainable footing. It was in Kazakhstan that President Xi for the first time announced his grand initiative of "One Belt One Road" in September 2013. Kazakhstan is also the only country in central Asia with a regular dialogue mechanism at the level of Premier.

Several bilateral committees have been created to encourage trade[1]. The main one is the China-Kazakhstan Cooperation Committee, established in 2004 and led by the Chinese and Kazakh Prime Ministers. It comprises around a dozen specialist sub-committees, for example on finance, biotechnology, petroleum and gas, and the use of nuclear energy for civilian purposes. It is criticised in some circles for its lack of transparency, and the consequent possibility that the Chinese authorities could buy decisions to their advantage. Indeed, the increase in China's political influence in Central Asia is becoming a sensitive question, with the growing phenomenon of influence groups that are considered shameful and dangerous for their potential to discredit a portion of the elite, or indeed even heads of state. The Kazakh media regularly publish remarks by local analysts and political opponents denouncing the presence of an influential "Chinese lobby" within official economic circles and embodied by the China-Kazakhstan Committee, among others[2]. Economic relations are also developing to a certain degree in a multilateral context through the Shanghai Cooperation Organization (SCO), The purpose of the Shanghai cooperation organization is to strengthen mutual trust and good-neighborly relations between member states; Encourage each member in the political, economic and trade, science and technology, culture, education, transportation, environmental protection and other fields of cooperation; Work together to maintain and safeguard regional peace, security and stability; Establish a democratic, just, reasonable international political and economic new order. Along with the growth of the Shanghai cooperation

organization, the economic cooperation is becoming more and more meticulous, more and more specific. Its development reflected in Mechanism construction, planning development strategy, promote project cooperation. Beijing is concerning that public opinion in Kazakhstan perceives China as a source of threat to its national security. According to estimates of the two leaders, the almost complete understanding was reached in ensuring regional security. Through the Shanghai Cooperation Organization (SCO), China has played a leading role in addressing these issues. Between Kazakhstan and China there is an agreement on cooperation in the fight against terrorism, separatism and extremism, signed on 23 December 2002 in Beijing. The police and security services are actively contacting. There was established Kazakh-Chinese Subcommittee for Security Cooperation.

The two countries' trade relations, which have reached a volume of $20 billion in 2011 (up from just $8.3 billion in 2006), much larger than trade between Kazakhstan and Russia. The initial goal set by Kazakh and Chinese officials was to reach a trade volume of $15 billion by 2015, however this goal has been surpassed four years early as the value of bilateral trade is already $5 billion above the planned level[3]. At the moment, Kazakhstan is one of China's main energy providers (11 million tons of oil reached China in 2010 through the Kazakhstan-China oil pipeline), and Chinese officials visiting Central Asia have recently expressed their desire to strengthen energy cooperation with oil-rich Kazakhstan. The Central Asian country's oil exports are set to increase dramatically over the next years with Kazakh officials promising a 50% increase by 2020, and a large share of this will be used to meet China's growing demand: Kazakhstan's goal is to provide 22 million tons/year of oil to China by 2020, up from an estimated 12.1 million tons in 2011.

In 1990s, the structure of import and export trade between Kazakhstan and China: for Kazakhstan, consumer goods are the major import from China and raw materials are the major export to China. In order to improve the living standards of the two countries' people so changed the structure of import and export trade. Nowadays, Kazakhstan imports products from China are mineral fertilizers, foodstuff, tea, utensils, clothing, footwear, textiles, plastics and household appliance. Exports products to China are crude oil, oil products, metal, mineral sand, steel, fertilizer, copper, aluminum, wool and leather, etc…

Economic and trade relations between China and Kazakhstan are developing on a basis of advanced contractual base, which includes more than 30 documents. The great value for progress in this sphere has an activity of the Kazakh-Chinese intergovernmental commission on trade and economic cooperation. Furthermore, each visit of Kazakh and Chinese politicians to Astana and Beijing usually results to new arrangements in the sphere of trade. The huge share of Sino-Kazakh trade is compounded by the trade with PRC's Xinjiang. Kazakhstan is main trading partner of XUAR. Xinjiang's exports to Kazakhstan for the past 20 years, is a leader in foreign trade operations, occupying 70% of the total trade between China and Kazakhstan. The bilateral trade volume has grown from $ 30 million in 1992 up to $

8,73 billion for the first six months of 2012. In the foreseeable future the importance of this region will grow, especially in the context of «strong center — strong province» strategy and the State program «XUAR-2015.»[4]

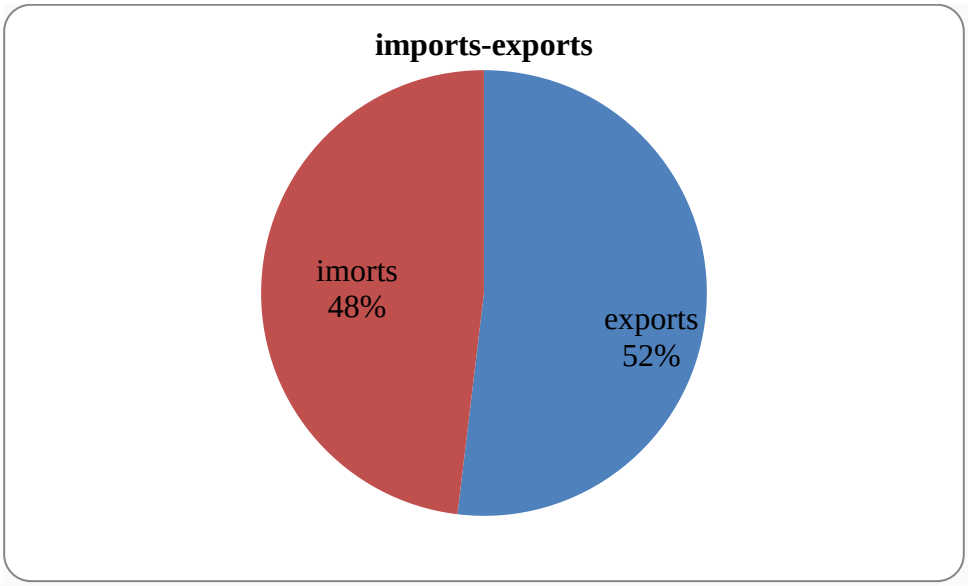

Figure 1- Foreign trade between China and Kazakhstan (2015)

From the figure 1 we can see the export and import between China and Kazakhstan in 2015. Imports from China took 48%, exports to China took 52%.

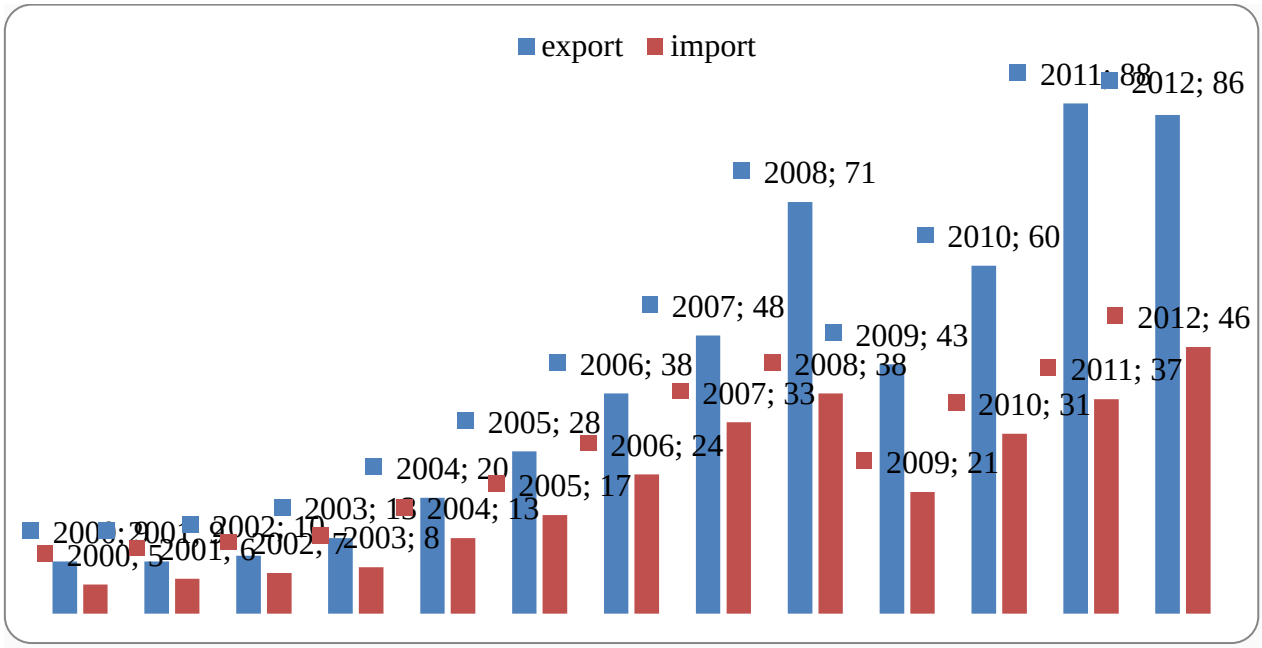

Figure 2- Import and export growth rate between China and Kazakhstan,
(billion. Tenge)

One of the most important elements of the Kazakh-Chinese dialogue is cooperation in the energy sphere. In the Kazakhstan's hydrocarbons market China is represented by the largest power companies: CNPC, Sinopec, CITIC. The oil volume which is produced in the Republic of Kazakhstan with the participation of Chinese companies constitutes about 45 million tons, more than 50% of the total annual oil production. Currently there continuing construction/reconstruction of Atyrau refinery (with participation Sinopec), Shymkent refinery (with participation of the CNPC), Aktau plastics plant and Moinak hydro-power station. In Aktau bitumen plant is constructing with the share of Chinese capital, the factory will satisfy the growing demand during building the transport corridor «Western China — Western Europe». China can play a significant role in strengthening the role of Kazakhstan as an influential player in the global food market. In particular, Kazakhstan is interested in the usage of transit and transport potential of China for the suppling of agricultural products to China and other Asia-Pacific countries.

In this case we want to show goods structure of foreign trade between China and Kazakhstan.

Table 1. Goods structure of export of the Republic of Kazakhstan, 2014, (Mln.$)

Type of product	Current US$
mineral products	6366
metals	1952
Products of chemichal	1195
Vegetable products	103
mechanical and electrical products	75
transport equipment	61
Plastics, rubber	18
leather goods	15
Food,drink, tobacco	7
Animal and vegetable oils	7
Textile and raw materials	6
Live animals and animal products	4
Precious metals and products	3
watches, medical equipment	1
Furniture, toys	1
other	1

Table 2. Goods structure of import of the Republic of Kazakhstan, 2014

(Mln.$)

Type of product	Current US$
mechanical and electrical products	3163
Precious metals and products	850
Textile and raw materials	599
Plastics, rubber	490
Shoes, boots, light industry products	486
transport equipment	428
Furniture, toys	263
Products of chemichal	240
Ceramics, glass	188
watches, medical equipment	174
Fiber pulp, paper	164
Vegetable products	158
leather goods	86
Food,drink, tobacco	59
mineral products	48
other	45

From the charts we can see the Kazakhstan's foreign trade, by comparing can know the mainly export products to China are mineral products, of course it's include oil products, and the mainly import products from China are mechanical and electrical products

In 2015, Kazakhstan exports of goods trade was 45.726 billion US dollars, Trade in goods exports accounted for 0.28% of total world exports. According to the type of export goods are: Agricultural products accounted for 5.4%, energy accounted for 75.1%, industrial products accounted for 11%. Type of export countries are: 58.4% for the EU, 13.1% for China, 6.4% for Switzerland and 4.6% for Turkey. Kazakhstan goods imports trade was 30.186 billion US dollars. Imports of goods accounted for 0.18% of total world imports. According to the type of imported goods are: Agricultural products accounted for 10.2%, energy accounted for 4.1%, industrial products accounted for 85.5%. By country of import, the EU is 35.4%, China is 26.2%, the United States is 7.3%, and Ukraine is 4.3%[5].

The main items of Kazakhstan's exports to China are mineral products and commodities: [6]

- the share of oil and natural gas account for 65%,
- base metals - 20%.

During the period 2000-2014 Kazakhstan's export structure has changed significantly. If the share of metals in exports was equal to about 80% in 2000, by 2014 it decreased and amounted to 20%. Kazakhstan's exports of mineral products to

China, by contrast, began to grow since 2000. The slowdown in China's industrial production growth has an impact on the economy of Kazakhstan. There are no radical changes in the structure of imports from China in Kazakhstan during 15 years. Machinery, electrical equipment and electronic devices, textiles predominate in the structure of imports.

From the figure 1 we also can see it's a good sign that exports greater than imports, but as all we knew the structure of exports are mainly raw materials. So it's very important expend the area of trade. Kazakhstan can increase exports of these goods to China, thereby strengthening trade and economic ties with China.

Kazakhstan's future economic growth depends on the development of infrastructure and regional trade. The country aims to become the largest business and transit hub of the Central Asia region, a bridge between Europe and Asia. It considers China's One Belt, One Road (OBOR) initiative and the EEU as means to this end. we must look at the Kazakhstan-China cooperation in a broader picture, particularly considering the vast and deep transformation in both countries, in the regions where they are located and in the world of 21st century. At the 25th meeting of the Foreign Investors' Council in May 2012, President Nursultan Nazarbayev proposed the New Silk Road project, under which Kazakhstan would become the largest business and transit hub of Central Asia. The initiative, also known as One Belt, One Road (OBOR), was formally announced by Chinese President Xi Jinping in Astana in September 2013[7].

China is the second-most important import partner to Kazakhstan after Russia. Respondents estimate Kazakhstan's potential to develop into a significant export market for China respondents as "limited due to a relatively small population and low purchasing capacity." But, at the same time, Kazakhstan is important for the development of China's western regions. One interviewee noted that "some work has been done to improve road and railroad infrastructure. However, more work is needed to reach an appropriate and required export level from China."

According to Kazakhstan's National Chamber of Entrepreneurs, the business community wants the country to be part of the OBOR project. But many are not aware of the opportunities that OBOR offers their businesses. According to one business person: "There is a lack of relevant information. China has been pushing the project on the government level, ignoring the grassroots level." According to another, "this initiative has the highest political support but looks controversial due to the Customs Union. The business community's expectations are associated with the transit potential and opportunities around it. Political risks also add ambiguity."

The economic incentives for Kazakhstan to join the OBOR initiative should be considered in terms of its location between China, Europe, and South Asia. In the view of one interviewee, the "leadership of Kazakhstan clearly understands that China is a rising global power, and in the near future it will definitely have capacity to directly influence the global agenda. So it is better, or maybe safer, to actively join

its project." The OBOR initiative is therefore seen as an alternative or reserve option in case the EEU fails.

China is strengthening its presence in the energy sector, particularly in terms of large oil projects: there are two pipelines transporting oil and gas to China. Kazakhstan wants support for an international exhibition, Expo 2017. It also wants to diversify its transport infrastructure, to build a terminal in the Chinese province of Lianyungang in cooperation with China, and to increase transport links to the sea.

Some opportunities for Kazakh and Chinese traders and investors arising out of Kazakh WTO accession are as follows:

Much more liberalized market to increase bilateral trade.

Trade plays an important role in Kazakh development in recent years. In 2010-2014, the share of Kazakh foreign trade in its GDP increased from 13% to 16%. The share of services also increased from 52% to 56%.

After its accession, Kazakhstan surely will witness more opportunities to develop its foreign trade and services sector with a much more liberalized market. Kazakhstan has committed to reduce its average tariff to 6.1% and improve market access in 10 services sectors covering 116 sub-sectors, including telecommunication, insurance, banking, distribution and tourism. This surely will bring enormous opportunities to further develop Kazakh trade with China, already its No.1 trading partner.

However, enormous efforts need to be made to balance bilateral trade between the two countries. For the time being, China-Kazakhstan trade is still too much dominated by primary products, accounting for almost 62% of total Kazakh exports to China. Of course the general Kazakh foreign trade features with a very similar structure, with oil taking 68% of its total exports.

Much greater potentiality to be tapped for bilateral investment.

For the moment, Kazakh economy has a serious structural problem and is pressed to diversify. This is reflected also by the whereabouts of its foreign direct investment (FDI), with over 80% of FDI into Kazakhstan spent in metallurgical industry, only 7% in food industry, 4.6% in computers and electronics and 2.6% in rubber and plastics.

It is noted that Kazakhstan has realized that opening doors wider for FDI will help its efforts to diversify its economy. As indicated by President Nazarbayev at the WTO General Council on July 27th 2015, Kazakhstan, after its accession, will strive to improve its investment climate so as to channel more FDI into processing sectors. Concrete measures include the "Nurly Zhol" (Bright Road) Initiative, which aims to develop a modern transport and energy infrastructure and cut by one third the travel time between major cities in the country, and the pledge of Astana to build itself into an international financial centre.

Those efforts coincide with China's emerging role as a global investor. In 2014, China's overseas investment has surpassed, for the first time ever, USD 100 billion, some of which went to manufacturing sectors. The "One Belt One Road" Initiative,

"International Capacity Cooperation" Initiative and Asia Infrastructure Investment Bank, are just some examples which will help increase Chinese investment in Kazakhstan. In particular, the "International Capacity Cooperation" Initiative strives to move some of its industrial capacity into other countries. The Guideline to Promote International Capacity and Equipment Manufacturingissued by Chinese State Council in May 2015, designated twelve priority sectors for such cooperation, including steel, railway, electricity and telecommunications, sectors of priority also for Kazakhstan to attract foreign direct investment. It was noted that the two countries, on March 27th 2015, signed 33 cooperation agreements amounting to USD 23.6 billion to enhance their capacity cooperation.

Much broader space to cooperate multilaterally.

Kazakhstan and China has also quite some interesting similarity in terms of their accession into the WTO. Both have spent years-for Kazakhstan it's 19 years and China 15 years-in concluding its accession negotiations. Both have undertaken extensive commitments to liberalize their goods and services markets and to streamline their trade and investment framework in accordance with WTO rules. Both have committed to negotiate to participate in Government Procurement Agreement (GPA) and join Information Technology Agreement (ITA) upon accession. And, because of the complexity of their accession commitments as well as their political and economic transformation in recent years, Kazakhstan and China face similar challenges of gravity to fulfill their obligations and fully utilize their WTO rights.

After 14 years, China has already become a fully-fledged member of the organization, participating actively in every aspect of the WTO activities. With its emerging leadership role as the world No.2 economy and No. 1 trader of merchandize, China has become a central player in the organization. It, based on its experiences in the past 14 years after accession, has a lot to share with Kazakhstan and other recently-acceded or acceding countries in central Asia. China has already taken the lead among major developing countries to provide WTO-related technical assistance to other countries, such as through the so-called "China Programme", the very first technical assistance programme ever established by a developing country within the WTO focusing on accessions and LDCs. Considering that all central Asian countries either have just joined the WTO or are still negotiating their accession, China could consider to establish a specific programme for this region assisting them on their accession negotiations and post-accession adaptation.

Meanwhile, for Kazakhstan and China, both acceded after the launch of the Doha negotiations, the last thing they want to witness is the malfunction of the WTO negotiation arm. Therefore, both countries have great interests in pushing for the successful conclusion of the Doha negotiations and updating WTO rules on important subjects such as investment and competition. We know that Doha negotiations have come to a decisive moment in Nairobi. The decisions to be taken there by all members are going to have serious impact on the role of the WTO in global

governance. If nothing, or little, is done to improve the WTO negotiation function, the WTO will have serious problem to maintain its status as the central body for global economic governance.

Many more opportunities to enhance regional integration.

Both Kazakhstan and China have made great efforts in participating in regional integration, with Kazakhstan having signed 14 FTAs and China signed 13 FTAs. China's "One Belt One Road" Initiative, one aim of which is to seek free trade initiatives with countries along the Silk Road, may provide good opportunities for the two countries to enhance greater integration not only between them two, but also between the regions where they are located.

To that end, Kazakh political analysts believe that it is necessary to use «Chinese presence in favor of Kazakhstan's socio-economic development. The first and main rule — in cooperation with any foreign partner it is necessary to put national interests in the center. Second, all agreements with foreign investors should be open. Thirdly, taking into account the difference of incomparable economy scales of China, Russia with the economies of the Central Asia states it is necessary to develop other forms of integration. it was quite encouraging that Mrs. Zhanar Aitzhanova, Kazakh Minister for Economic Integration, on May 25th 2015, extended strong support to build a series of FTAs along the Silk Road. And, as an important player in that region, Russia, on May 8th 2015, also issued a joint statement with China to declare that efforts will be made to integrate China's "One Belt One Road Initiative" with the Eurasian Economic Union (EAEU). Shortly after that, concrete negotiations were already started aiming to conclude FTA between China and EAEU.

Build the China-Kazakhstan free trade area is not only an integral part of regional economic cooperation of the Shanghai Cooperation Organization , but also to build the Shanghai Cooperation Organization, the Free Trade Area of the previous exercises. Still in the process of the development of bilateral economic and trade there are some constraints and outstanding problems , it is urgent to both sides adhering to the philosophy of sincere cooperation from a strategic height , take it seriously , in a progressive , sequential , the principle of reciprocity , and complemented by an effective institutional arrangements to promote the Sino-Kazakh bilateral economic and trade cooperation to carry out , thus achieving greater economic development of China and Kazakhstan .

In conclusion, Political and economic cooperation between China and Kazakhstan is, overall, an example of success. The two countries still cooperate mostly in the energy sphere, but both seem committed to encouraging Kazakhstan's economic diversification.Kazakhstan and China, as well as the regions where they are located, are undergoing enormous and deep transformation. The WTO accession of Kazakhstan, put within that broader context, will bring great opportunities to enhance Kazakhstan-China cooperation. Political and economic cooperation between China and Kazakhstan is, overall, an example of success. The two countries still cooperate

mostly in the energy sphere, but both seem committed to encouraging Kazakhstan's economic diversification.

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4.5. AN EMPIRICAL STUDY IN RISK MANAGEMENT: ESTIMATION OF VALUE AT RISK WITH GARCH FAMILY MODELS[19]

Abstract

The classical VaR methods, the four univariate and two multivariate GARCH models with the Student's *t* and the normal error distributions have been applied to 5 stock returns and 4 portfolios to determine the best VaR method. We used four evaluation tests to assess the quality of VaR forecasts:

- Failure rate
- Kupiec's test
- Christoffersen's test
- Joint test

The results point out that GARCH based models produce far more accurate forecasts for both individual and portfolio VaR. RiskMetrics gives reliable VaR predictions but it is still substantially inferior to GARCH models. The choice of an

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optimal GARCH model depends on an individual asset, and the best model can be different based on different empirical data.

I. Introduction

Classical VaR methods have meaningful drawbacks. They include historical simulation (HS), RiskMetrics, and unconditional approaches. For instance, RiskMetrics method always assumes joint normality of the returns. This approach also considers that the returns are uncorrelated which means the returns are serially independent and do not change over time. However, in reality these assumptions do not hold in most cases. On the other hand, the basic driving principle of the historical simulation method is its assumption that the VaR forecasts can be made based on historical data implying the history can be repeated in future.

In 1982, Engle, the winner of the 2003 Nobel Memorial Prize in Economic Sciences, introduced ARCH ("Autoregressive Conditional Heteroskedasticity") models. Then Bollerslev (1986) proposed the generalization of the ARCH process calling it GARCH models. The main advantage of the GARCH models is that they are capable of capturing the distinct properties of the financial time series. In recent years, the estimation of the VaR using GARCH models has become very popular and most widely-used approach in VaR calculation. Many research results have shown that the GARCH models outperform classical VaR methods and make more accurate VaR forecasts.

Fuss, Kaiser and Adam (2006) applied three different VaR approaches: the normal, Cornish–Fisher (CF), and the GARCH-type VaR to S&P hedge fund index series (SPHG). They showed that the GARCH-type VaR gives more accurate VaR forecasts than other VaR methods for most of the hedge fund style indices. Totic, Bulajic and Vlastelica (2011) estimated daily returns of FTSE100 index using non-parametric, RiskMetrics and GARCH-based VaR methods with the normal and *t* distributions. According to their research, RiskMetrics and GARCH models performed better than non-parametric approaches. So and Yu (2006) estimated one-step-ahead VaR predictions to 12 stock market indices and four foreign exchange rates using six GARCH models and RiskMetrics. They have concluded that all GARCH models outperform RiskMetrics in estimating 1% VaR and Student's *t* distribution produces more accurate VaR forecasts than the normal.

Angelidis, Benos and Degiannakis (2004) used AR-GARCH, AR-EGARCH and AR-TARCH models of different orders with the normal, Student's *t* and the generalized error distributions to estimate one-step-ahead VaR for five stock indices: S&P 500, NIKKEI 225, FTSE 100, CAC 40 and DAX 30. They came to the conclusion that the sample size is crucial in defining VaR accuracy, leptokurtic distributions make better VaR predictions and the GARCH model fitting the data best depends on specific stock indices. Orhan and Koksal (2012) compared 16 GARCH models in estimation one-step-ahead VaR forecasts using Student's *t* and the normal

distributions. The data used were stock indices from growing (Turkey, Brazil) and developed (Germany, USA) economies. The conclusion again underlined that GARCH (1,1) result was the most accurate, and Student's *t* slightly outperformed the normal distribution. Wong, Cheng and Wong (2003) tested the performance of 9 GARCH models in estimating VaR results for Australia's All Ordinary Index (AOI) series. Their result showed that GARCH-based VaR models showed poor performance and did not meet Basel's backtesting criteria. Next I have analyzed some earlier studies on portfolio VaR estimations. Santos, Nogales and Ruiz (2013) compared the performance of three multivariate GARCH models in computing VaR forecasts for equally weighted diversified portfolios with large number of assets. The models used included DCC-GARCH, CCC-GARCH and Asymmetric DCC-GARCH. This study has showed that DCC-GARCH produced more accurate VaR forecasts compared to other models. Morimoto and Kawasaki (2008) conducted a more comprehensive research in order to define the best model in forecasting portfolio VaR. They have evaluated the performance of VECH, BEKK, CCC-GARCH, DCC-GARCH models with *t* and normal errors and RiskMetrics. Portfolios included large numbers of assets from Tokyo Stock Exchange. According to the study's results, the DCC-GARCH was found to be the best model in forecasting portfolio VaR.

The underlying aim of this paper is to evaluate and compare the performance of classical and GARCH-based VaR approaches in order to define the best VaR methodology. I will also analyze the implementation of RiskMetrics and assess whether it provides adequate VaR forecasts to be the most accurate VaR approach in risk management and whether it can considerably outperform other methods.

My second objective is to compare GARCH models results under different distribution assumptions and define the best one for VaR estimation. There are still many questions remaining on VaR methodologies. Is there any GARCH model that substantially outranks other GARCH models? Does Student's *t* distribution fit data well and give more accurate VaR predictions than the normal distribution as implied by many empirical studies? In this paper, I attempt to offer reasonable answers to these questions.

In risk management we can find many research papers where the analysis part is conducted on simulated data. Recently more researchers carry out their empirical study mainly on global indices such as NASDAQ, FTSE100, NIKKEI, etc. or corporate stock prices from different fields. The choice of the data for my paper is based on a slightly different approach. The asset returns of seven largest copper producers are used to estimate 99% and 95% VaR forecasts. The scale of the world copper market counted by billions of US dollars and the empirical results of this paper might be helpful in finding the best risk forecasting model for this market.

II. Theoretical Framework

1. Univariate GARCH models

1.1 GARCH model

Engle (1982) described ARCH as "…mean zero, serially uncorrelated processes with nonconstant variances conditional on the past, but constant unconditional variances". The main advantage of ARCH models is that they can generate accurate models in forecasting volatility of financial time series.

Let ε_t be a random variable (in the paper it is the financial time series, expressed in returns) with a zero mean and variance conditional on the past time series $\varepsilon_1, \dots, \varepsilon_{t-1}$.

Engle (1982) proposed decomposition of ε_t as:

$$\varepsilon_t = \sigma_t z_t$$

where z_t is a sequence of independent, identically distributed random variables with zero mean and unit variance. Typically, the distribution of z_t is assumed to be normal or leptokurtic (Terasvirta, 2006), and the conditional variance of the ARCH model of order *q* is modeled by

$$\sigma_t^2 = w + \sum_{i=1}^{q} \alpha_i \varepsilon_{t-i}^2$$

where w>0, $\alpha_i > 0$.

Bollerslev (1986) in his paper proposed so-called generalized ARCH models. The GARCH (q, p) is given by

$$\varepsilon_t = \sigma_t z_t$$

$$\sigma_t^2 = w + \sum_{i=1}^{q} \alpha_i \varepsilon_{t-i}^2 + \sum_{i=1}^{p} \beta_i \sigma_{t-i}^2$$

q represents the order of ε_{t-i}^2 and *p* represents the order of σ_t^2. It is necessary to impose conditions, such as w>0,$\alpha_i > 0$, $\beta_i > 0$ and $\sum_{i=1}^{q} \alpha_i + \sum_{i=1}^{p} \beta_i < 1$ to obtain a positive conditional variance and assume stationarity.

In this paper we use the GARCH models of orders *q*=1 and *p*=1 for VaR estimation for their simplicity and reliability of results as accurate as other higher order GARCH family models. GARCH(1,1) is given by

$$\sigma_t^2 = w + \alpha_1 \varepsilon_{t-1}^2 + \beta_1 \sigma_{t-1}^2$$

where

- ε_{t-1}^2 are returns with zero mean and unit variance
- w , α_1, β_1 – model coefficients
- $w > 0$, $\alpha_1 > 0$, $\beta_1 > 0$ and $\alpha_1 + \beta_1 < 1$
- $\sigma^2 = \frac{w}{1-\alpha-\beta}$, σ^2 is unconditional variance of ε_t^2
- $E(\sigma_t^2)=E(E(\varepsilon_t^2|\varepsilon_{t-j}, j = 1,2,...))=\sigma^2$

1.2 Exponential GARCH (EGARCH) model

EGARCH (q, p) is given by (Terasvirta, 2006):

$$\log(\sigma_t^2) = w + \sum_{i=1}^{q}[\alpha_i\varepsilon_{t-i} + \lambda_i(|\varepsilon_{t-i}| - E|\varepsilon_{t-i}|)] + \sum_{i=1}^{p}\beta_i\log(\sigma_{t-i}^2)$$

In our thesis we use EGARCH (1,1) model:

$$\log(\sigma_t^2) = w + \left(\alpha\varepsilon_{t-1} + \lambda\left(|\varepsilon_{t-1}| - E(|\varepsilon_{t-1}|)\right)\right) + \beta\log(\sigma_{t-1}^2)$$

- ε_t are returns with zero mean and unit variance
- w , λ, β, α – model coefficients
- $\alpha\varepsilon_{t-1}$ is a sign or asymmetry effect
- $\lambda\left(|\varepsilon_{t-1}| - E(|\varepsilon_{t-1}|)\right)$ is a magnitude effect

1.3 Integrated GARCH (IGARCH) model

The condition for IGARCH is

$$\sum_{i=1}^{q}\alpha_i + \sum_{i=1}^{p}\beta_i = 1$$

IGARCH (1,1) model:

$$\sigma_t^2 = w + \alpha_1\varepsilon_{t-1}^2 + \beta_1\sigma_{t-1}^2$$

where

- $w > 0$, $\alpha_1 > 0$, $\beta_1 > 0$ and $\alpha_1 + \beta_1 = 1$

1.4 GJR-GARCH Model

General form of the GJR-GARCH (q, p) is given

$$\sigma_t^2 = w + \sum_{i=1}^{q}(\alpha_i + \lambda_i I_{t-i})\varepsilon_{t-i}^2 + \sum_{i=1}^{p}\beta_i\sigma_{t-i}^2$$

where I_{t-i} is an indicator function taking the value one if the residual is smaller than zero and the value zero if the residual is not smaller than zero.

$$I_{t-i} = \begin{cases} 1, if\ \varepsilon_{t-i} > 0 \\ 0, otherwise \end{cases}$$

GJR-GARCH (1,1) model:

$$\sigma_t^2 = w + (\alpha_1 + \lambda_1 I_{t-1})\varepsilon_{t-i}^2 + \beta_1 \sigma_{t-i}^2$$

where

- $I_{t-1} = \begin{cases} 1, if\ \varepsilon_{t-1} > 0 \\ 0, otherwise \end{cases}$
- w , λ_1, β_1, α_1 – model coefficients
- $w > 0$, $\alpha_1 > 0, \beta_1 > 0, \lambda_1 > 0$

2.Multivariate GARCH models

2.1 GO-GARCH model

A formal definition of the GO-GARCH model is given by (Weide, 2002):

"Let $\boldsymbol{\varepsilon_t} = (\varepsilon_{1t}, \varepsilon_{2t}, \dots, \varepsilon_{mt})$ be multivariate time series data and assume it is governed by a linear combination of uncorrelated components $\{\mathbf{u_t} = (u_{1t}, u_{2t}, \dots, u_{mt})\}$:

$$\boldsymbol{\varepsilon_t} = Z\boldsymbol{u_t}$$

New independent components are obtained through the linear transformation matrix Z and Z matrix is assumed to be invertible and constant over time".

The conditional covariance matrix of $\boldsymbol{\varepsilon_t}$ is given by

$$V_t = ZH_tZ'$$

where H_t is the conditional covariance matrix of the components. Since the components are independent, H_t is a diagonal matrix. Each of the components is modeled as a univariate GARCH process:

$$u_t|t-j, j = 1,2,\dots n \backsim D(0, H_t)$$

$$h_{it} = w + \sum_{j=1}^{q} \alpha_i u_{i,t-j}^2 + \sum_{j=1}^{p} \beta_i h_{i,t-j}$$

We can also use ordinary univariate GARCH models as well as other types of GARCH such as EGARCH, IGARCH and GJR-GARCH to model components.

2.2 DCC-GARCH model

The DCC-GARCH model can be defined as (Orskaug, 2009):

$$\varepsilon_t = V_t^{1/2} \mathbf{z_t}$$
$$V_t = D_t R_t D_t$$

where

- $\varepsilon_t = (\varepsilon_{1t}, \varepsilon_{2t}, \dots, \varepsilon_{mt})$ - portfolio consisting of *m* asset returns (*n x 1* vector of demeaned log returns of *m* assets at time *t*)
- $\mathbf{z_t}$ is *n x 1* vector of independent, identically distributed random variables such that E[$\mathbf{z_t}$]=0 and Var[$\mathbf{z_t}$] =E($\mathbf{z_t z_t}'$) =**I** (**I** is an identity matrix)
- V_t – the conditional covariance matrix of portfolio returns
- D_t is a diagonal matrix of standard deviations
- R_t is a time dependent correlation matrix

The conditional variance of each asset $\sigma_{i,t}^2$ can be modeled by any of the univariate GARCH model with the normal error distribution and stationarity property. D_t is given by:

$$D_t = \begin{bmatrix} \sigma_{1,t} & \cdots & 0 \\ \vdots & \ddots & \vdots \\ 0 & \cdots & \sigma_{m,t} \end{bmatrix}$$

The positive definiteness of V_t depends only on the correlation matrix R_t that is if R_t is a positive definite matrix then V_t would also be positive definite. In order to obtain a positive definite correlation matrix, R_t is constructed by symmetric positive definite autoregressive matrix Q:

$$R_t = Q_t' Q_t$$

The correlation matrix structure can be extended to the general DCC (*K*,*L*)-GARCH model (Orskaug, 2009):

$$Q_t = \left(1 - \sum_{k-1}^{K} a_k - \sum_{l-1}^{L} b_l\right)\bar{Q} + \sum_{k-1}^{K} a_k \varepsilon_{t-1}\varepsilon_{t-1}' + \sum_{l-1}^{L} b_l Q_{t-1}$$

In our paper we run DCC (*1*,*1*)-GARCH (1,1) model and so I want to give some more information regarding this model.

DCC (*1*, *1*)-GARCH (1, 1) model:

$$\varepsilon_t = V_t^{1/2} \mathbf{z_t}$$
$$V_t = D_t R_t D_t$$
$$R_t = Q_t' Q_t$$

where

$$D_t = \begin{bmatrix} \sigma_{1,t} & \cdots & 0 \\ \vdots & \ddots & \vdots \\ 0 & \cdots & \sigma_{m,t} \end{bmatrix}$$

$$\sigma_{i,t}^2 = w + \alpha_1 \varepsilon_{i,t-1}^2 + \beta_1 \sigma_{i,t-1}^2$$

$$Q_t = (1 - a - b)\bar{Q} + a\boldsymbol{\varepsilon_{t-1}}'\boldsymbol{\varepsilon_{t-1}} + bQ_{t-1}$$

- $\bar{Q}$ is an unconditional sample covariance matrix
- a, b are model parameters, $a>0$, $b>0$ and $a+b<1$

2.3.Evaluation tests

After using different techniques in VaR estimation we need to check their predictive accuracy using various statistical tests. There are a lot of VaR methodologies, and it is necessary to find the best model for risk forecasting. Several evaluation ways are known for model checking such as analyzing residuals, testing for normality, etc. In this paper, we use out-of-sample VaR estimates to assess risk forecasts. Out-of-sample VaR estimates are obtained based on the previous years' observations and are compared with the last year's actual data. Since VaR values are unobservable, first we need to check estimated VaR results with realized returns according to the VaR confidence interval (Angelidis, Benos and Degiannakis, 2004). For the purposes of this paper, we explain and use four statistical techniques for evaluating the quality of VaR forecasts:

- Failure rate
- Kupiec's test
- Christoffersen's test
- Joint test

The first method is related to the backtesting comparison of out-of-sample VaR values with historical observations while Christoffersen's and Kupiec's tests are mainly concerned with formal testing of the significance of the violation ratios (Danielsson, 2011).

III. Empirical results

1. Data

The data consists of seven stock returns of the world's largest copper producers. In this paper, I use continuously compounded returns which are obtained by taking logarithms in price changes. Continuously compounded return at time *t* is defined by:

$$r_t = \log\left(\frac{P_t}{P_{t-1}}\right) = \log(P_t) - \log(P_{t-1})$$
$$r_t(n) = r_t + r_{t-1} + \cdots r_{t-n+1}$$

where

- P_t is a daily closing price of a stock at day t
- r_t is a return at day t
- n - is a period of returns

Table 1. World's largest copper producers in 2012

Producer	Period[20]	Production, million metric tons	Share in the world production	Country
Codelco	2003.11.10-2012.12.31	1.667	11%	Chile
Freeport-McMoRan	2003.11.10-2012.12.31	1.445	10%	USA
BHP Billiton	2004.02.21-2012.12.30	1.135	8%	Australia
Xstrata	2004.02.25-2012.12.31	0.923	6%	Switzerland
Anglo American Plc	2004.02.19-2012.12.31	0.625	4%	UK
Rio Tinto Group	2004.02.23-2012.12.31	0.554	4 %	Australia
Kazakhmys	2005.10.07-2012.12.31	0.312	2%	Kazakhstan

The length of these time series data is different since they released their stocks at various times. For the purpose of the paper, daily closing prices for the last seven years are used but there are less of some of them as their shares were issued later.

Copper is one of the most widely used metals in the world, it is used almost in all spheres of industry such as electronics, automobile industry, space industry and so on.

The world's seven largest copper producers accounted for over 6 million metric tons of copper production (Table 1). I use daily stock prices of seven top 10 corporations in copper production: Codelco, Anglo American Plc, Kazakhmys, Rio Tinto Group, Xstrata Plc, BHP Billiton Ltd., and Freeport-McMoRan Copper & Gold Inc.[21]

I have constructed four portfolios from different corporate stock prices which are presented in Table 2.

[20] Period of stock prices used in the paper
[21] The data is available on http://finance.yahoo.com/

Table 4. Portfolios

Portfolio	Portfolio assets	Weights on assets
A	Codelco, Kazakhmys	(0.5, 0.5)
B	Xstrata, Rio Tinto Group	(0.5, 0.5)
C	BHP Billiton, Freeport-McMoRan, Anglo American Plc	(0.3, 0.3, 0.4)
D	Rio Tinto Group, Codelco, BHP Billiton	(0.3, 0.3, 0.4)

Table 2 includes 4 portfolios (A, B, C and D). A and B consist of two assets, and C and D include three assets each. In our paper we calculate the portfolio of VaR values using these four portfolios.

IV. Conclusion

In this thesis, we have explored the performance of classical and GARCH based VaR methodologies in the world copper market. We have estimated the one-day-ahead VaR with two percentiles α=1% and 5% in the empirical study. Four univariate and two multivariate GARCH models: GARCH, EGARCH, IGARCH, GJR-GARCH, DCC-GARCH and GO-GARCH with the normal and the Student's *t* error distributions were used in the estimation of the VaR, the results were compared with HS and unconditional VaR approaches. We have examined VaR methodologies using four evaluation tests: the failure rate, Joint, Kupiec's and Christofferson's tests were carried out and analyzed to choose the most appropriate VaR method.

VaR estimates for individual assets have shown that GARCH-based VaR methods considerably outperformed HS, RiskMetrics and unconditional approaches. The result is consistent with the results obtained by three different studies, which were specified in the introduction part. Fuss, Kaiser and Adams (2006), Totic, Bulajic and Vlastelica (2011), So and Yu (2006), they all have pointed out the advantage of GARCH-type VaR over other methods.

It can be observed in Tables 5 through 14 that the null hypotheses of evaluation tests for classical methods are partially or fully rejected almost for four out of five assets. If we focus on the performance of GARCH models then all of them give very reliable and similar results, which means that the capacity of the models depends on a particular asset. Nevertheless, GJR-GARCH and EGARCH generate slightly better results than other GARCH models, however it is not justified enough to make a clear conclusion about the outperformance of these models. RiskMetrics methodology produces meaningful forecasts in estimating 95% VaR but it is still far inferior to other GARCH models. Though many empirical and theoretical studies have shown the advantages of Student's *t* over the normal distribution in modeling financial risks, in this paper we have obtained equal results for both, indicating that the choice of the

error distribution mostly relies upon individual assets. These results enable me to draw similar conclusions as made by Angelidis, Benos and Degiannakis (2004), where they concluded that the choice of the optimal model depends on individual stocks, and Student's *t* distribution produces slightly better results than the normal. On the other hand, the results showed strong disagreement with Wong, Cheng and Wong (2003) study suggestions that GARCH-based VaR models do not meet Basel's backtesting criteria, as we have obtained very accurate and reliable one-step-ahead VaR forecasts with GARCH family models.

The overall picture for portfolio VaR estimation is different than that of individual assets. In forecasting 99% VaR Historical simulation and GARCH models give solid results and outrank all other methods, including RiskMetrics. On the other hand, multivariate GARCH models show outstanding performance in making 95% VaR predictions, their failure rates are sufficiently accurate and evaluation tests are accepted with obvious support. RiskMetrics has poor fulfillment in 99% VaR forecasting while it generates adequate 95% VaR predictions, though it lacks accuracy as compared to GARCH models. Again unconditional parametric approach makes the least accurate VaR forecasts. Research studies of Nogales, Ruiz (2013), Morimoto and Kawasaki (2008) discussed in the introduction part concluded that DCC-GARCH model substantially outperforms other multivariate GARCH models and RiskMetrics. On the other hand, Caporin and McAleerb (2012) showed that the optimal model for portfolio VaR estimation can be different for every portfolio and depends on various factors, such as the sample period, portfolio structure, etc. Empirical results of this paper also indicate that there is no unique optimal multivariate GARCH model, an optimal model must be chosen depending on the specific data and factors.

In conclusion, GARCH-based models outperformed classical methods for both individual and portfolio VaR estimation. The choice of an adequate GARCH model depends on a particular asset, and the best model can be different based on various empirical data. Despite widely accepted view of superiority of the *t* distribution over the normal in estimating financial risks, we have shown that the performance of error distributions can be different for different data.

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Scientific publication

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MONOGRAPH

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Send for the press 28/02/2017.
Format of the paper 60x84 1/16.
Paper offset. Amount is 16,3
Printing 500 copies