Volume 16, Special Issue 1

Print ISSN 1544-1458
Online ISSN 1939-6104

ACADEMY OF STRATEGIC MANAGEMENT JOURNAL

Editor

Nikolai Vasilevich Lyasnikov
Russian Presidential Academy of National Economics and Public Administration

The *Academy of Strategic Management Journal* is owned and published by Jordan Whitney Enterprises, Inc. Editorial content is under the control of the Allied Academies, Inc., a non-profit association of scholars, whose purpose is to support and encourage research and the sharing and exchange of ideas and insights throughout the world.

Authors execute a publication permission agreement and assume all liabilities. Neither Jordan Whitney Enterprises nor Allied Academies is responsible for the content of the individual manuscripts. Any omissions or errors are the sole responsibility of the authors. The Editorial Board is responsible for the selection of manuscripts for publication from among those submitted for consideration. The Publishers accept final manuscripts in digital form and make adjustments solely for the purposes of pagination and organization.

The *Academy of Strategic Management Journal* is owned and published by Jordan Whitney Enterprises, Inc., PO Box 1032, Weaverville, NC 28787, USA. Those interested in communicating with the *Journal,* should contact the Executive Director of the Allied Academies at info@.alliedacademies.org.

Copyright 2017 by Jordan Whitney Enterprises, Inc., USA

TABLE OF CONTENTS

EXCHANGE OF PROPERTY RIGHTS AND CONTROL AS A CONDITION OF THE INNOVATION PROCESS EFFECTIVENESS AT COLLABORATION BETWEEN UNIVERSITY AND ENTERPRISE

Elvir M. Akhmetshin, Kazan Federal University
Vladimir L. Vasilev Kazan Federal University
Aidar S. Puryaev, Kazan Federal University
Rifat R. Sharipov, Kazan National Research Technical University
Tatyana N. Bochkareva, Kazan Federal University

INTRODUCTION

Currently, the innovative development of the enterprise is considered to be an urgent task. Implementation of innovation in the economic activity of the enterprise is a complex process. Thus, effective innovation process conditions and factors, as well as mechanisms of its control need further investigation.

METHODS

The study is based on general research methods such as the analysis and synthesis, the deduction and induction, the interrelation between historical and logical, laws of dialectics, and the analysis of cause and effect relationship. Special methods include the institutional approach, methods of the theory of property rights and the theory of innovation. The study is based on the works of scholars such as J.A. Schumpeter, N.D. Kondratieff, D.C. North, R.H. Coase, D. Hahn, S.Y. Glaz'ev, D.S. Lvov, J.L. Abalkin, K.S. Mullakhmetov, S.P. Robbins, M. Coulter, R.L. Daft, V. Horvath, and others.

RESULTS

Conducted study revels beneficial effect of property rights exchange in the innovation process. Property rights act as a vital institution of increasing confidence and values in the innovation process. The identified main stages of the innovation process are considered in a following sequence: idea $\rightarrow$ intellectual property asset $\rightarrow$ intangible assets $\rightarrow$ shares. The exchange of proprietary rights allows determining the required ratio of economic resources and create behavior scenario of the innovation process participants.

DISCUSSION

Special attention is paid to the transitions from stage to stage in the innovation process, as well as improvement of control procedures at each stage. It is found that the main risks occur during the transition of the innovation process from one stage to another. These stages should be

taken into account when exchanging and control of property rights. The authors distinguish between sales of knowledge and intellectual property management since property rights transformation in these two cases is different.

FINAL REPORT

The application of the institutional approach and the property rights theory to improve the effectiveness of the innovation process is a promising and relevant tool of economic activity of university and enterprise.

Key words: property rights, institutions, innovation, innovation process, intangible assets, shares, control.

JEL Classification codes: O 32; D 23; M 20.

INTRODUCTION

Currently, to maintain a high level of competitiveness, modern enterprises are forced to innovate. Every day world market is updated with variety of innovations, thoughh the lifetime and effectiveness of some of them is very small. They are not recognized by customers, and thus instantly disappear from the market. The problem is how to promote and retain innovation in the market. Risks and lack of financial resources hinders the successful innovative development of the company. To overcome these problems, modern companies are forced to cooperate with scientific organizations, universities, and state innovation-supporting institutions, as well as various investment and venture capital funds.

The term “innovation” was introduced into the scientific circulation by the Austrian economist Joseph Schumpeter, who considered innovation as a change aimed at implementation and use of new types of consumer goods, new production and transport means, markets and forms of industrial organization to meet new challenges (Schumpeter, 1947).

Nikolai Kondratieff, in his theory of large business cycles pointed to an existing relationship between long waves and technical and innovative development of production, involving into the analysis data on scientific and technical discoveries and showing wave-like nature of their dynamics (Kondratieff, 2002).

The social orientation of the innovation-based growth theory was developed by Peter Drucker, leading American management consultant, who invented the concept known as management by objectives and self-control, and has been described as the founder of modern management. Drucker was the first who systematized data about the introduction of the new and overcoming psychological resistance to this process (Drucker, 2002).

The effect of innovation on established rules and traditions was described by Douglass North. The scientist comes to the conclusion that innovation generates contradictions. On the one hand, these contradictions force to abandon old institutions, while, on the other hand, they generate and strengthen new institutions. This is how the evolution of the socio-economic system occurs (North, 1989).

Research conducted by Ronald Coase is of particular importance for the efficient organization of the innovation process. The scientist has proved the existence of high transaction costs in market transactions (Coase, 2013). Control and exchange of property rights in the course

of innovation advancement from idea to market allows reducing transaction costs and ensuring a return on investment.

One of the leading areas in the modern theory of innovative development is the concept of technological structure proposed by S.Yu. Glaz'ev (Glaz'ev, 1997) and D. Lvov (Lvov, 1990). According to them, periodic process of successive substitution of technological modes developed under the effect of radical innovations, defines "long-wave" pace of modern economic growth.

The concept of national innovation systems (NIS) formation is deemed to be one of the modern approaches and is associated with the scientists such as C. Freeman (1995), B. Lundvall (2010), and R. Nelson (2011). The authors of NIS concept have given an important role to learning and knowledge accumulation processes, paying special attention to their institutional aspect. According to them it is important to explore the institutions (exchange of property rights), which provide the interaction between the university and enterprise in the innovation process.

The effectiveness of the innovation process increases with the implementation of effective control procedures. Organization of control in the enterprise management system has been described in the works of D. Hahn (1997), K.S. Mullakhmetov et al. (2014), S.P. Robbins and M. Coulter (2004), R.L. Daft (2009), V. Horvath et. al. (2005) and others. The application of approaches developed by the above authors with regard to the organization of the control allows improving the efficiency of the innovation process.

Studies of L. Abalkin are focused on increasing economic security of the national economy and its enterprices, inclusive of more active use of innovative capacity (Abalkin, 1997).

Therefore, the innovation process consists of selling knowledge and using intellectual deliverables through the institution of property rights and competition. This article aims at formulating effective interaction principles between contemporary companies, universities, and innovation infrastructure entities in the course of knowledge sales and implementation of intellectual property assets.

METHODOLOGY

The conducted study uses general research methods such as the analysis and synthesis, the relationship of the logical and historical processes, the laws of dialectics, as well as the institutional approach used as a special economic method. According to the theory of institutions, innovation represents the process of moving innovative idea to industrial production, mass sales, and obtaining intellectual rent by the owners of innovation. The owners of innovation refer to the innovation process participants, who invest their economic resources in promoting innovation to the market and in return receive compensation in the form of intellectual rent. The investment of economic resources in the earlier stages of the innovation process has the highest multiplier of intellectual rent. The article proposes a methodological approach to the analysis of the innovation process as a set of constantly changing property rights moving from idea to diffusion of innovation in the external environment (Hagerstrand, 1966). The functions and the composition of the innovation process are constantly changing and stipulated by the objectives of an effective commercialization of innovations.

The control must be carried out at the beginning and the end of each stage of innovation. In this context, the aim of the present study is formulating recommendations for effective institutional factors and conditions, as well as providing control and effective commercialization of innovation for contemporary companies and the university.

RESULTS

Currently, the Russian economy recognizes the right to private property and the right to conduct entrepreneurial activity, and the state keeps out of pure competition (Sadriev *et al.*, 2016, Gapsalamov, 2015). An important factor in entrepreneurial activity is the motivation of all the innovation process participants. Motivation means the interest of market participants in obtaining of income on invested resources in the context of innovative risks. High risk of investments loss at early stages of the innovation process leads to shortage of investment. The innovation process consists of the following stages: the idea or knowledge → intellectual property asset (IPA) → intangible assets (IA) → shares.

This approach changes over the innovation process into the legal, economic, and accounting plane, where the innovation process participants are: the author → patent holder → IA owner → shareholder, while related structures include: universities → companies → state institutions to support innovation. In this case, the innovative process develops through a reallocation of private property rights. At the university and company level, IPA gains on valuation and turns into IA becoming the main capital of the contemporary economy in the form of shares or other securities. Passing each of the stage should be necesarely monitored. Input and output control should include a system of indicators generated depending on the stage of the innovation process.

This logic indicates the private property rights that are received by each innovation process participant, as well as shows how investment attracting process is carried out to promote IPA and turn innovative idea into IA and high profitability company shares (Matveev et. al., 2016b). This approach allows controlling and managing the motivation of innovation process participants, as well as reducing risks and attracting investments.

When developing innovations, erroneous focus on the short-term benefits is explained by the risk aversion and rejection of uncertainty. For most companies, the main objective is to use the innovation as well as to ensure clear understanding among decision makers of the benefits from use and implementation of innovation. Collateral value of intangible assets allows increasing the innovative capacity of the company.

The problem of innovation management, organization, and control is one of the most critical issues. Many companies attempt to innovate independently through specially established support structures or innovation centers (Makarov *et. al*., 2016). Here it is also necessary to determine the value of created intangible assets in order to ensure the mutually beneficial exchange of economic benefits, as well as carry out the innovation process control.

Currently, favourable conditions for joint participation of universities and companies in the innovation process exist in almost all countries (Matveev *et al.*, 2016a). The corporate innovative activity should be considered as the development and implementation of scientific and technological achievements, efficient utilization of enterprise capacity towards improving competitiveness of production and maximize profits. It is well known that products and technologies have a limited lifetime. Most companies attach great importance to the extension of the product life cycle. They are guided by the desire to maximize the return on invested capital. Registration of ownership allows reducing the risks of investments and not to miss the moment when it is necessary to cease production of obsolete goods. Control of economic and innovation activities also helps to reduce the risk.

The limited lifetime of products means that companies need to effectively organize the sale of manufactured goods at all stages of their life cycle, taking into account their

obsolescence, and develop new products in a timely manner (Khusainova and Ustyuzhina, 2015). The balance between the improvement of existing goods and development of new products is an important issue, though extremely challenging for any company. It is therefore necessary to establish sustainable cooperation with the university in order to purchase knowledge or exchange property rights.

Innovative activity, because of its character, should be organized separately from the main production process. It should have its own budget and special administration. In any case, the company should strive to achieve the organizational flexibility of the innovation process. In this case one may talk of different methods of innovation process organization and control.

First of all, it is necessary to examine the economic nature of knowledge and intellectual property assets management in the framework of the presented research scheme. There are some differences in the sales of knowledge and commercialization of intellectual property assets. When selling knowledge, innovator acts as a management process entity. In this case knowledge is inseparable from the person. When commercializing IPA, patent or another title of protection serves a management process entity. In the course of selling knowledge the customer is a specific person, while when commercializing IPA any market entity can be a customer. The purpose of selling knowledge is defined in advance, while when commercializing IPA, it depends on the extent of rights to IPA. The process of achieving goal while selling knowledge is determined by the innovator on the basis of the optimal way of obtaining the result, and may change. When commercializing IPA, process of obtaining the result is prescribed formally. When selling knowledge, their liquidity is low and increases only after the execution of the works. Commercializing IPA requires determining their value at the very beginning. When selling knowledge, knowledge holder is directly involved in transaction process. In the IPA commercialization process, the innovator may not be involved in the bargain or can act just as a consultant. In the sale of knowledge, the object of market transaction is the ability to perform future work, while that in the process of IPA commercialization is materialized result of human physical and intellectual abilities (Latyshev and Akhmetshin, 2015). The actors of economic relations when selling knowledge are employer and employee, while when commercializing IPA those can be several equitable owners of intellectual property assets. The formal basis in the sale transaction of knowledge is an employment agreement, while IPA is commercialized based on license. Scientific and technical risk in the sale of knowledge is presented in the very course of using knowledge (and skills), while risk associated with commercialization of IPA appears in the process of materialization of already acquired knowledge. There is no market risk in the sale of knowledge because the customer is determined and the demand for knowledge is known. When commercializing IPA, market risk is very high, because the market responce to innovation is not known in advance. The sale of knowledge is also associated with minimal managerial risk, because within the organisation there is a strict subordination according to the position responsibility write-up. When commercializing IPA, managerial risk is maximum, because commercialization requires a flexible and continuous cooperation while there is no initial formal rules of subordination and leadership. In the course of selling knowledge there is no possibility of obtaining fraction of income by the scientific community. In the course of commercialization of IPA, scientific organization can obtain a certain fraction of income. The involvement of the university in the innovation process when selling knowledge is carried out through its employees, while in the commercialization of IPA, university can act as an independent market agent.

In any case (sale of knowledge or intellectual property assets) registration and exchange of property rights is a key factor in the success of the innovation process and attraction of the necessary economic resources or new participants in market transactions. The organization of innovation process control should become an obligatory condition of cooperation between the university and enterprise.

DISCUSSION

In some companies, researchers and experts easily move from one innovation project to another, providing the extension or reduction in scope of work. The company faces a choice: either to continue the traditional production or starting innovation. In this case, the head officer should always give preference to current affairs. Thus, one of the basic principles of organizational innovation is the creation of autonomous group or team, which must operate beyond the current operating structure of production (Falyakhov and Shatunova, 2015). Similarly, certain investments to fund innovation should be allocated from the overall corporate budget. In this case the cooperation with the university may lead to the creation of a small joint innovative company with the fractional ownership of rights to future innovation (Krotkova *et al.*, 2016).

The following problems exist in the implementation of the proposed innovation stages (idea $\rightarrow$ IPA $\rightarrow$ IA $\rightarrow$ shares). The main problem consists in entering of the intellectual property asset on balance sheet of the company. This problem is relevant also to universities (Osadchy and Akhmetshin, 2015).

Another problem concerns transitions from stage to stage: idea $\rightarrow$ IPA, IPA $\rightarrow$ IA, IA $\rightarrow$ shares as well as control these transitions. The transition can be fulfilled only in case if there is a need for innovation in the market. This requires constant work to maintain the level of motivation in the innovation process participants (Shatunova and Shabalin, 2014).

In this case, the innovators and other participants of the innovation process will need assistance in the assessment of IPA and its promotion. The assistance can be obtained from state institutions supporting innovation. These include industrial parks, which consist of business incubators and technology transfer centres (Krotkova *et al.,* 2016). Universities and companies also need to cooperate with investment funds and certified management companies. The main task of the state in the short term is to improve the system of creating, fixing and protecting private property rights on innovative ideas and technologies. The need for the intellectual property market comes on the front burner (Khusainova and Ustyuzhina, 2013).

It is necessary to develop a set of indicators required to monitor the innovation process. For this task we can use the balanced scorecard (BSC) concept (Vasilev *et al.,* 2013). Performance benchmarks should reflect exchange dynamics of property rights and develop recommendations for necessary economic resources and the innovation process participants.

CONCLUSION

The exchange of property rights is the basis for the innovation process development in communication between the university and enterprise. To identify effective principles and forms of property rights exchange and control it is nesessary to differentiate between sales of knowledge and commercialization of IPA.

First, when selling knowledge, key elements include the innovator and his ability to apply this knowledge. The IPA is the materialized result of used innovative abilities and depends to a lesser degree on the innovator's idea. Accordingly, the financial support in the first case should be directed to the development of human capacities to create and innovate, while in the second case it should be focused on the development of supporting processes that ensure the emergence, evaluation, and promotion of IPA.

Secondly, when selling knowledge, the customer as well as the service fee are predefined that certainly reduces the market risk, while building economic relations on the basis of an employment contract also reduces managerial risk. The commercialization of IPA is accompanied by high risk in terms of the lack of market demand, possible loss of rights, and the opportunistic behavior of partners (Freeman, 1979). However, such high risks can bring consequently higher profits.

Thirdly, while in the commercialization of IPA, which is based on innovation, one must follow the definition of the invention, at the sale of knowledge, the innovator chooses independently the path of achieving the result that indicates the possibility of reducing scientific and technological risk. However, tangible IPA can be property to be conveyed that evidences about its high liquidity compared to the pure knowledge, while the use of licensing relationships allows obtaining alternative ways of commercialization and also reducing innovation risk.

Fourthly, from the university viewpoint, the commercialization of IPA allows redirecting the profit into the development of fundamental research and obtaining new knowledge, whereas the sale of knowledge is a tool allowing generating income by specific university employees. At that, they use university facilities, while their maintenance and modernization is the task of the university and the state.

Fifthly, selling knowledge and commercialization of IPA are the result of the continuous cycle: basic research → applied research → licensing → commercialization. At that, these stages should be provided by both infrastructure elements and a legal, financial, and consulting support including research chairs (budget financing) → research departments and scientific innovation training centers (funding based on commercial agreement) → patent department (university own funds) → innovation management, technology park, and business incubator (University Alumni Association, "business angels", budget and extrabudgetary venture funds).

Innovation is the most important driving force which promotes the sustainable economic growth of the country (Gapsalamov, 2016). The main ability of innovation is to create an effective intangible and tangible basis of life in the present as well as in the future.

Studying the possibilities of interaction between universities, companies, and public institutions to support innovation through the exchange of intellectual property rights is a crucial task. Reducing risks and attracting investment is possible only through a certain motivation in the participants of innovation process. The execution of these tasks is possible in the framework of implementing the following stages: idea → IPA → IA → shares. On the other hand, we should differentiate between sales of knowledge and commercialization of the IPA at interaction between the university and company. Noted differences may affect the strategy of innovative activity of modern company and university.

Another important task consists in control over the innovation process stages. It is necessary to develop a system of indicators controlling the exchange of property rights for all participants of the innovation process.

ACKNOWLEDGEMENT

The work is performed according to the Russian Government Program of Competitive Growth of Kazan Federal University.

REFERENCES

Abalkin, L. J. (1997) Russia's economic security. *Vestnik Rossijkoj Akademii Nauk*, 67(9), 771.

Coase, R. H. (2013). The problem of social cost. *Journal of Law and Economics*, 56(4), 837-877.

Daft, R. L. (2009). *Management* (8th ed.). St. Petersburg: Piter.

Drucker, P. F. (2002). The discipline of innovation. *Harvard Business Review*, 80(8), 95.

Falyakhov, I. I., & Shatunova, O. V. (2015). Formation of the social-professional mobility of students during their participation in the college innovative activity. *Social Sciences (Pakistan),* 10(6), 926-929.

Freeman, C. (1979). The determinants of innovation. market demand, technology, and the response to social problems. *Futures*, 11(3), 206-215.

Freeman, C. (1995). The 'national system of innovation' in historical perspective. *Cambridge Journal of Economics*, 19(1), 5-24.

Gapsalamov, A. R. (2015). Conditions of soviet economy development in the middle of XX century and factors of its crisis. *International Business Management*, 9(5), 862-867.

Gapsalamov, A. R. (2016). Organization of management of ussr industry: Branch and territorial models. *Journal of Economics and Economic Education Research*, 17(SpecialIssue2), 90-95.

Glaz'ev, S. Y. (1997). Technological shifts in russia's economy. *Matekon*, 33(3), 3-30.

Hagerstrand, T. (1966). Aspects of the spatial structure of social communication and the diffusion of information. *Papers of the Regional Science Association*, 16(1), 27-42.

Hahn, D. (1997). Planning and control: the concept of controlling. Moscow: Finance and Statistics.

Horvath, V., & Partners (2005). Concept of controlling: Managerial accounting. *Reporting system. Budgeting*. Moscow: Alpina Business Books, pp. 19

Khusainova, S. V., & Ustyuzhina, O. N. (2015). The essence and factors determining the competitive capacity of an enterprise. *International Business Management*, 9(5), 848-855.

Khusainova, S. V., & Ustyuzhna, O. N. (2013). Ensuring the competitiveness of the regional enterprises in the sphere of production as the basis of stable and balanced development of the meso level of socio-economic system. *Middle East Journal of Scientific Research*, 17(12), 1714-1717.

Kondratieff, N. (2002), *Big Cycles of Conjuncture and Theory of Prevision, Selected Works*. In Yakovets, Y.V., and L.I. Abalkin, (Eds.). Moscow: Ekonomika.

Krotkova E. V., Mullakhmetov K. S., & Akhmetshin E. M. (2016). State control over small business development: approaches to the organization and problems (experience of the Republic of Tatarstan, the Russian Federation). *Academy of Strategic Management Journal*, 15(SpecialIssue1), 8-14.

Latyshev, I. O., & Akhmetshin, E. M. (2015). Methodological approaches to analyzing the indicators of human capital management in the interests of innovation development of enterprise. *International Business Management*, 9(6), 1565-1570.

Lundvall, B. (2010). *User-producer relationships, national systems of innovation and internationalisation. National systems of innovation: Toward a theory of innovation and interactive learning*. London: Anthem Press, pp. 47-70.

L'vov, D. S. (1990). *Effective management of technical development*. Moscow: Ekonomika.

Makarov, A. N., Khusainova, S. V., & Makarov, E. A. (2016). Informational business activity: Features of pricing and transformations of a network effect. *Journal of Economics and Economic Education Research*, 17(SpecialIssue2), 192-197. www.scopus.com. (accessed November 30, 2016).

Matveev, Y. V., Trubetskaya, O. V., Lunin, I. A., Rousek P., & Kopnov, V. A. (2016a). Clusters and their role in economic development. *International Journal of Economic Perspectives*, 10(3), 113-125.

Matveev, Y. V., Valieva, E. N., Trubetskaya, O. V., & Kislov, A. G. (2016b). Globalization and regionalization: Institution aspect. *Mathematics Education*, 11(8), 3114-3126.

Mullakhmetov, K. S., Aminova, R. M., & Akhmetshin, E. M. (2014). Control in a management system in modern conditions. *Asian Social Science*, 10(24), 237-247.

Nelson, R. R. (2011). The complex economic organization of capitalist economies. *Capitalism and Society*, 6(1), 1-24

North, D. C. (1989). Institutions and economic growth: An historical introduction. *World Development*, 17(9), 1319-1332.

Osadchy, E. A., & Akhmetshin, E. M. (2015). The intellectual capital importance and the role of organizations against the backdrop of a crisis: Innovation vector. *Social Sciences (Pakistan)*, 10(6), 1013-1020.

Robbins, S. P. & Coulter, M. (2004). *Management* (6th ed.). Moscow: "Williams" Publishing House.

Sadriev R. D., Mullakhmetov K. S., & Akhmetshin E. M. (2016). Russian Business Medium: Competition Problems. *International Journal of Economics and Financial Issues*, 6(S8), 30-38.

Schumpeter,J.A (1947). Theoretical problems of economic growth. *The Journal of Economic History*, 7(S1), 1-9.

Shatunova, O. V., & Shabalin, S. V. (2014). Innovative training forms of pre-service teachers of technology for the teaching the basics of entrepreneurship. *World Applied Sciences Journal*, 29(4), 585-588.

Vasilev, V. L., Tuktarova, E. M., & Akhmetshin, E. M. (2013). A balanced scorecard and economic security of companies. *World Applied Sciences Journal*, 27(13 A), 424-427.

CONCEPTION BSC FOR INVESTMENT SUPPORT OF PORT AND INDUSTRIAL COMPLEXES

Tatyana Vladimirovna Alesinskaya, South Federal University
Diana Vladimirovna Arutyunova, South Federal University
Vlada Georgievna Orlova, South Federal University
Igor Vasilevich Ilin, Peter the Great Saint Petersburg Polytechnic University
Svetlana Vladimirovna Shirokova, Peter the Great Saint Petersburg Polytechnic University

ABSTRACT

Development of concepts of state, regional and municipal management, in the absence of coordinated system of interrelated strategic plans of development of branches and regions, leads to imbalance. In this regard, the problem of creating well-balanced plans of port and industrial complexes development becomes more complicated and significant.

To define the strategic guidelines for development of port and industrial complexes the formation of the balanced scorecard is proposed to assess the current and future (target) state investment potential of port and industrial complexes, to identify, validate and develop methods and plans for its development. The proposed conceptual model focuses on the need of attraction comprehensive investors in order to balance territorial development within social, economic and innovative components. This will contribute to the formation of uniform balanced policy in territory management.

Keywords: port and industrial complexes, investment potential, balanced scorecard, strategic map, investment support, strategic planning.

INTRODUCTION

In the context of the Russian economic crisis (2014-2015), international sanctions and restrictions on political and economic relations with Turkey (partner in the Azov-Black Sea basin), the state economic policy is focused on the development of its own production and infrastructure, including port one.

In the current conditions the port and industrial complexes (PIC) can become one of the most powerful factors in economic development of Russian regions. PIC allows to integrate production, infrastructure, financial and social components, which implements the investment potential of the port area (Orlova, 2014).

The solution of many regional problems is impossible without strategic management of economic systems (Egorshin, 2004). PIC is a subsystem of the region, i.e. it has many links with other subsystems and its elements, and therefore, it also needs strategic management. Strategic management is necessary for PIC investment support in multipolar world.

Along with this, the main problem in socio-economic development of regions is still an imbalance between the individual subsystems of the economy: innovation processes critically lag behind production ones, investment growth - behind the growth of population savings (Kleiner, 2011).

This situation is exacerbated by the lack of a coordinated system of interrelated strategic plans for the development of industries and Russian Federation subjects. This leads to imbalance in the system when developing the concepts of the state, regional and municipal management objects, in particular the PIC.

Besides the problem of external balance of meso - and macrolevel strategies, there is a related task of internal balance of PIC development plans. In this regard, in the present work the formation of a balanced scorecard (BSC) is proposed to define the strategic guidelines for the development of PIC. This allows to assess the current and future (target) state of the PIC investment potential.

LITERATURE REVIEW

World practice shows that an evidence-based approach to the creation of the investment environment allows to implement transit-communication potential of PIC and, consequently, to solve complex socio-economic tasks in the seaside region.

The object of this study is Taganrog PIC, located on the shore of the Azov sea, the subject is the investment potential of PIC. Currently Taganrog PIC is in a stage of decay, the main cause of which was the crisis of 2008 (Orlova, 2014).

Strategic management systems, aimed to build and implement the investment potential, are needed for investment development of the Russian PIC in the context of globalization. An important condition in the process of selection of investment object for investors is practical availability of a mechanism for effective strategic management.

There are many scorecards to assess strategic and operational aspects of the business. The study by Popov D. (2003) proposed a set of criteria, which allows to select the most appropriate tools of strategic management solutions - Quantum Performance Measurement (Quantum measurement of achievements - QPM) and BSC. QPM is designed to optimize the performance of an enterprise by analyzing information about the organizational structure, processes and employees. In addition to these areas BSC evaluates customer (marketing) and financial perspectives, which are a priority for the analysis of the results of investment support. It should be noted that initially BSC as a concept is a model of company's strategy (Kochnev, n.d.) (in the context of this study, port and industrial complexes) and investment management tools, that is business development.

Confirmation of the relevance of the chosen methodology is that the last 15 years of strategic planning is the leader in the list of the world's most popular management tools. At the same time, since 2008, the top ten management tools invariably have been including the Balanced Scorecard (“BAIN & Company”, 2013).

In this context, in this study the development of strategic management concept of Taganrog PIC in order to increase its investment potential is based on the application of BSC methodology.

The concept of Balanced Scorecard (BSC) developed by R. Kaplan and D. Norton (2014) has the greatest practical value (Arutyunova, 2005), it is adaptive from the point of view of the objects of study (Arutyunova & Lankin, 2013). Therefore, in the future, this concept is considered as fundamental.

The balanced scorecard converts the strategy into a system of interrelated indicators. There is a number of unresolved methodological issues of practical application of the BSC tool and its integration into the system of management of organizations.

These include, in particular, filtration of objectives that are not strategic, selection of important aspects of business (perspectives), identification of causal relationships between indicators and their quantitative assessment, formulation and justification of indicators coordination criteria, the decrease of the resistance of grass-roots management (Boukreev, n.d.; Nedosekin, 2015). In addition, from the position of management information concept BSC practical application involves the implementation of all three groups of management system functions. These are functions of information exchange, routine functions of information processing, functions of information content transformation (decision-making). Therefore, there is an additional managerial and technical task of automation work with BSC. These issues should be resolved on the basis of system analysis methodologies, cybernetics, measurement theory, multiobjective optimization, causal analysis, etc.

RESEARCH METHODOLOGY

Along with this, it should be noted that, despite the popularity of this tool, there is a problem of having open access to specific techniques of practical construction and usage of BSC. In particular, one of the problematic issues is the method and criteria for assessing the indicators coordination (balance).

In the framework of further study, the following interpretation options of the indicators coordination notion in the BSC are offered:

1) coordination on the basis of mutual arrangement of indicators in the BSC between:
   - indicators within each block (vertical coordination, decomposition objectives);
   - the performance of different units (horizontal coordination, cause-effect relationships);
   - the BSC indicators and environmental factors, including stakeholders, the environment constraints (causal relationships);
   - indicators of past, present and future time periods (time coordinate).
2) coordination on the basis of the content of indicators in the BSC:
   - coordination of the quantitative values of the indicators;
   - coordination of the characteristics of reachability, risk, uncertainty achievement indicators.

One of last works, devoted to the development of coastal areas, is the work of Valev E.B. (2009), in which he defined them as coastal production facilities in Europe. He identified four types of complexes: multi-functional, capital, specializing in shipbuilding, iron and steel industry, oil reception and processing, resort territories. The study of Gogoberidze G.G. and Mamayeva M.A. (2011) suggests indicator system for assessing the capacity of the marine coastal and marine port and industrial complexes to determine the characteristics and strategic capabilities of economic development of such areas.

Of particular interest is the work by Fedulova E.A. and Kononova S.A. (2014) dedicated to evaluating the effectiveness of investment regions strategies. In contrast to the concept of Norton D.P. and Kaplan R.S., it offers to use the fifth perspective “Society”, which includes the following objectives:

- economic development of the territory,
- social investment effect,
- increase in investment activity.

At the same time the general goal of the strategic management of this interpretation is the quality of life, sustainable socio-economic development of the region.

The results of these tasks characterize the implementation of the region investment potential. PIC is one of the subsystems of the regional socio-economic system, for this reason the objectives of perspective "Society" are the general goal of strategic management. There is another question on the BSC methodology, proposed by Fedulova. It is one-sided orientation of the relationship between problems of different perspectives on the strategic map, which strictly follow in the upward direction from one perspective to another: "training and

development" → "internal processes" → "client" → "finance" → "society". In our opinion, this approach simplifies real interdependence and can't see the feedback between the tasks of different perspectives, which enhances the multiplier effect of management.

4. Problem Statement and Research Objective.

4.1 Concept of investment potential

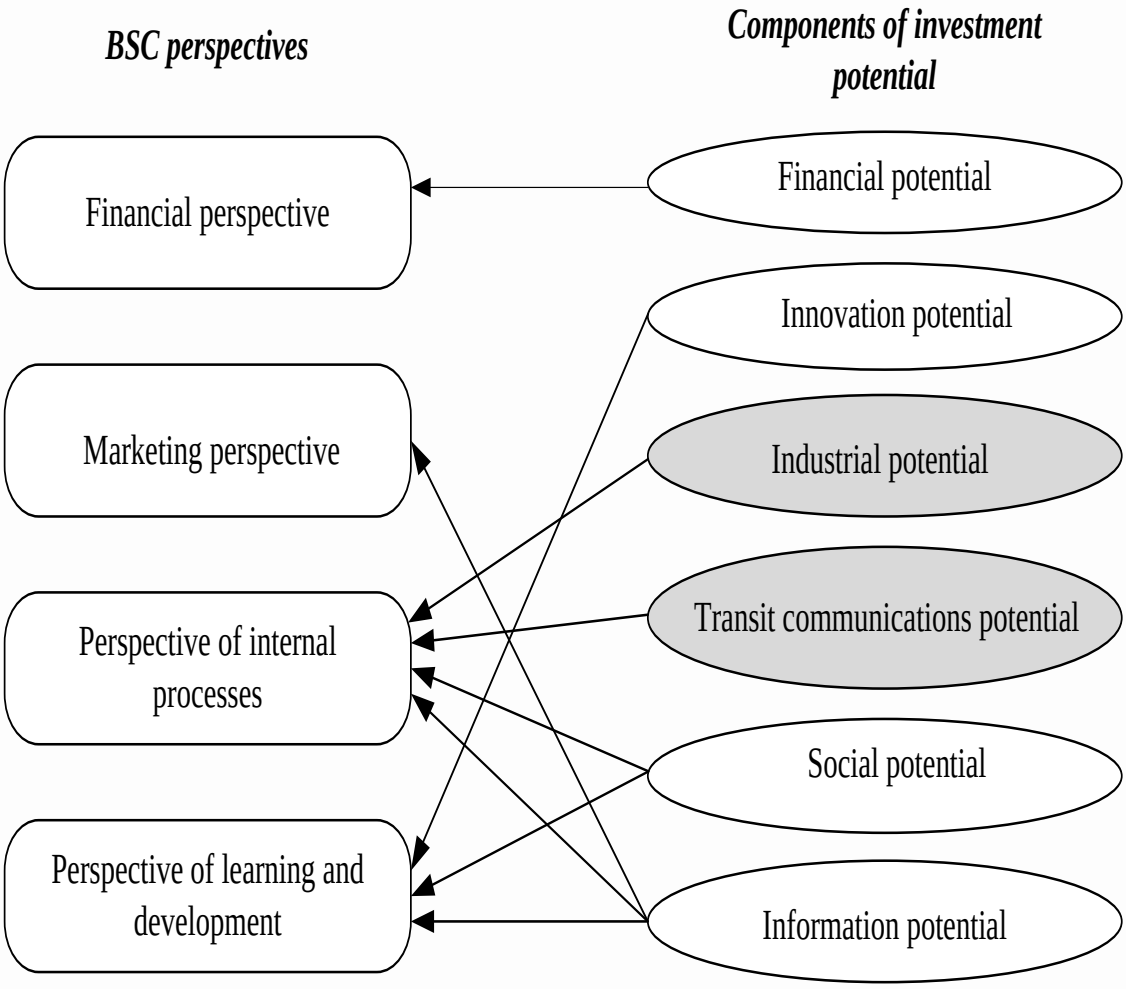
The defining aspects of this study are: specific management object of research - PIC, the subject - investment support and the BSC concept as a tool for strategic management. The goal of this study is to develop tools for modeling of PIC investment support with BSC. Research objectives include:

- to determine the structure of PIC investment potential;
- to distribute the components of investment potential on BSC perspectives;
- to form a tree of BSC objectives and tasks for management of PIC investment potential;
- to justify the indicators, which measures objectives;
- to determine the causal relationship indicators, tasks and perspectives of the BSC.

In this study, components of investment potential are determined on the basis of major factors of production: labour, land, capital, entrepreneurial talent and information. In coastal areas the factor "land", including water area, corresponds to the production and transit communications potentials. Social capacity reflects the production factor "labour", financial - capital, innovative capacity – "entrepreneurial skills".

Thus, social (labor), financial, innovation and information potentials provide realization of industrial and transit-communication components of investment potential (Fig.1) (institutional potential is included in all potentials, tourism potential is not considered in this study).

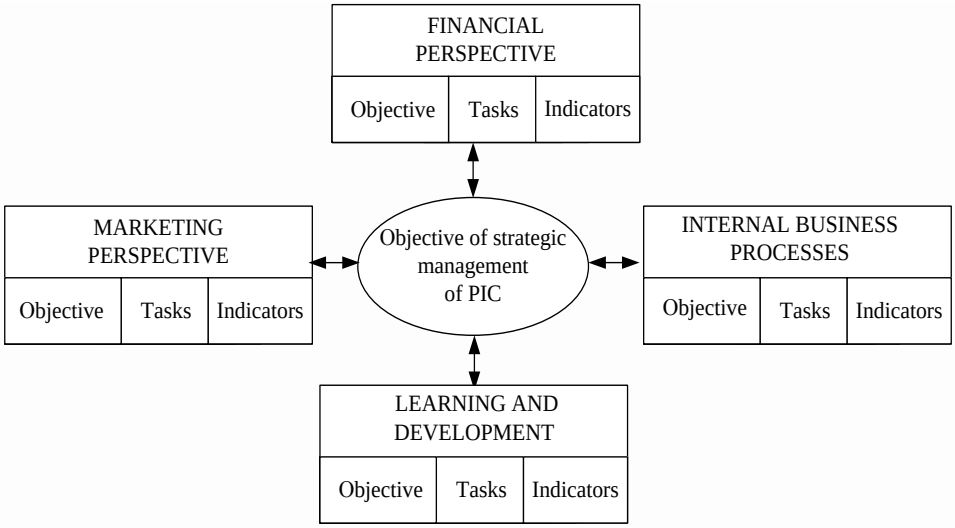
Figure 1
THE CORRESPONDENCE OF INVESTMENT POTENTIAL COMPONENTS TO PERSPECTIVES OF BSC



It should be noted that investment potential indicators in the structure of each of the components can be divided into two groups. The first group of indicators characterizes the conditions of the PIC, and the second group is resultant. In this regard, in our view, it is necessary to consider the same infrastructure (industrial potential - production infrastructure, etc.) for the first group within each investment potential component. The main purpose of every kind of infrastructure is to create conditions for effective PIC activities. Resulting indicators, such as industrial potential, should include the volume of production.

Port and industrial complex is a powerful source of development, basis of investment potential of the coastal zone. In the context of globalization, competitive advantages disappear on the basis of production factors, the development degree of all types of infrastructure comes to the foreground as an important factor of investment attractiveness (Kuznetsova, 2010).

Figure 2
THE STRUCTURE OF THE BALANCED SCORECARD



The general goal of PIC strategic management is to increase its investment potential. This goal is decomposed on the objectives and the corresponding to them tasks within each of the BSC perspectives. Implementation of each task is measured by a set of indicators (Fig.2).

The components of investment potential should be distributed according to the classical four BSC perspectives as follows (see Fig.1).

The main focuses of attention for each perspective were used during the formation of the BSC tasks. Figure 3 shows the strategy map of increasing of PIC investment potential. It displays the relationship between the BSC tasks and perspectives.

4.2 The perspective of financial performance

The perspective of financial performance is resultant in the BSC and it shows the financial component of investment potential.

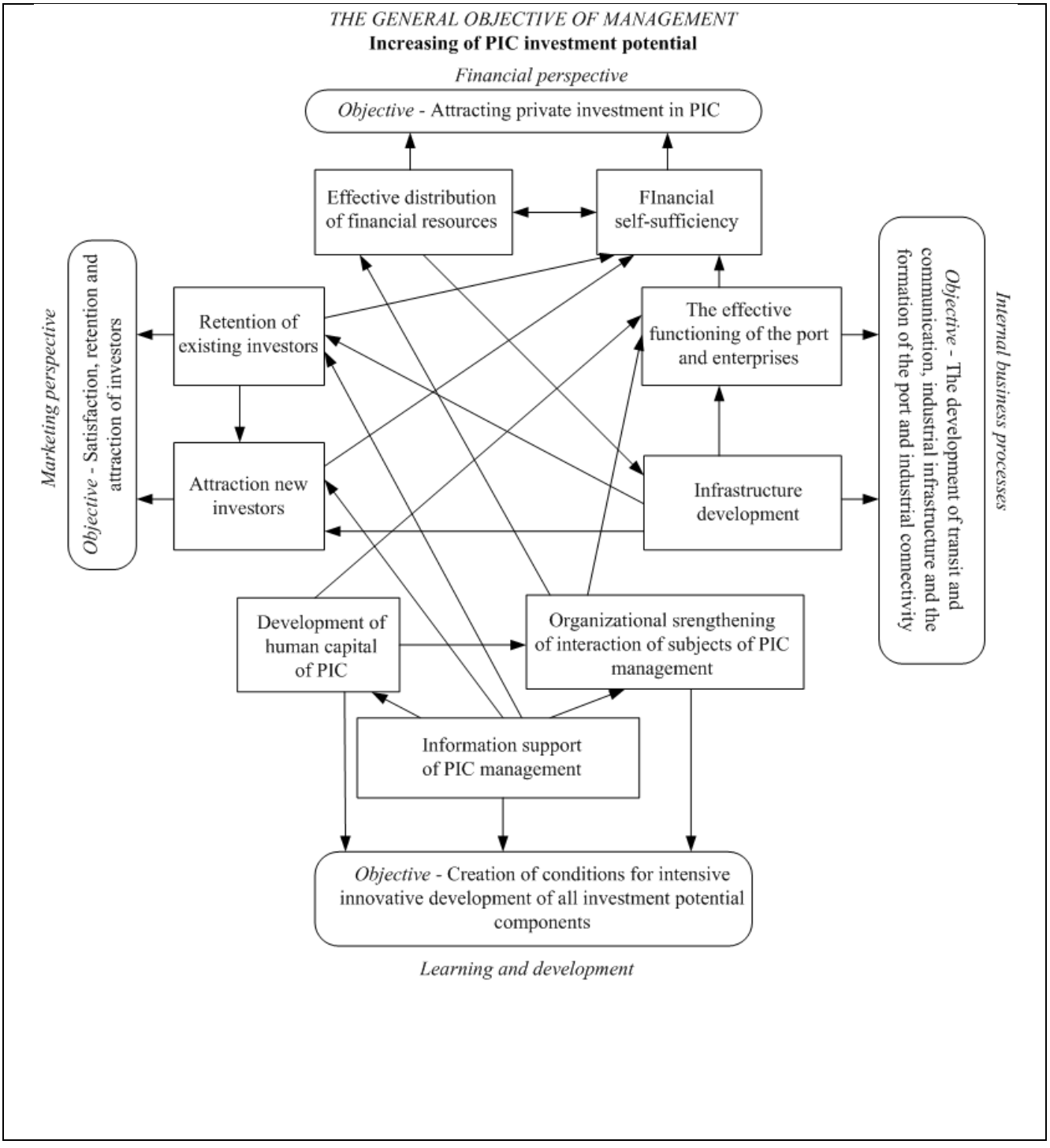
The objective of financial perspectives is attracting private investment to PIC, which includes the following two tasks.

1. Efficient allocation of financial resources that allows to create all kinds of PIC infrastructure. The result of this problem decision can be determined by the following indicators: structure of financing, total investment in infrastructure component of the investment potential.

2. Financial self-sufficiency, implying the presence of financial capacity for the implementation of tasks of PIC infrastructure development. Indicators of solving the problem will be: percentage of profitable enterprises, increase in the number of enterprises, profits of the port, amount of the tax base (“Expert RA”, 2015).

The causal relationship of two tasks of financial and marketing perspectives is the following: effective distribution of financial resources allows to create, maintain all kinds of infrastructure, which provides necessary conditions for retaining old investors and attracting new ones. It will lead to the development of PIC enterprises, and, therefore, increase their profitability, and consequently, increase the tax base that implements the financial sense of self-sufficiency.

Figure 3
STRATEGIC MAP OF INCREASING PIC INVESTMENT POTENTIAL



MARKETING PERSPECTIVE

Marketing perspective corresponds to the formation of attractive image of PIC for the outer investment. The objective of marketing perspectives - satisfaction, retention and attraction of PIC investors - is achieved by solving two interrelated tasks.

1. Retention of existing investors is measured by the following indicators: the volume of investments per capita, the volume of foreign investments per capita.

2. The attraction of new investors includes indicators of the dynamics of investment per capita, the dynamics of foreign investments per capita, territory ranking.

A territory rating is indicator of its competitive ability, which, from marketing perspective, is a condition (factor) of promotion of PIC in the investment market. Dynamic indicators reflect trends of PIC investment development, which allows to predict the perspectives of potential investments.

The causal relationship between two tasks of marketing perspective is as follows. Successful solution of retaining old investors task creates a positive image of PIC. It increases the likelihood of attracting new investors. In addition, investors, who are currently working with the PIC, can attract new investors, based on interconnected business. It contributes to the formation of clusters.

PERSPECTIVE OF INTERNAL PROCESSES

Perspective of internal processes of PIC reflects the production, transit and communication, social, informational potentials, because the eponymous types of infrastructure are the basis for the implementation of production and logistics functions.

The objective of the perspective of PIC internal processes is development of transit and communication, industrial infrastructure and the formation of port and industrial connectivity. Tasks are focused on following two directions.

1. Effective functioning of port and businesses is measured by indicators of port workload in tonnage, shipped goods of its own production, the value of fixed assets per capita.

2. Infrastructure development is determined by the number of investment projects implemented in infrastructure field and the investments in infrastructure per capita.

A causal relationship between perspective of internal processes and marketing perspective - internal PIC processes determine the development of transit communication and production component of the investment potential in the first place. It directly increases the attractiveness of the territory for investors (marketing perspective). Attraction of investments in turn promotes another cycle of development of the seaside complex. Marketing perspective keeps old investors, attracts new investors and increases investment support of the internal PIC processes.

4.5 The perspective of learning and development

The perspective of learning and development is primarily based on innovation, social and informational potentials. Innovations is essential element of knowledge, technology, and infrastructure update. They are the most important factor economic growth. Well-developed information infrastructure is a necessary condition for operative reception and information processing and, consequently, making effective management decisions. Social capacity also

refers to living conditions of the population, in particular, environmental situation in PIC. This is due to bidirectional use of marine resources: port and recreation.

The objective of the growth and development perspectives is creating conditions for intensive innovative development of all investment potential components, resulting in the following problems.

1. Human capital development of PIC is measured by total income, unemployment rate, number of citizens not involved in labor activity, applying for 1 vacancy, the structure of professional degree of the territory.

2. Information support of PIC management is determined by the index of information transparency, in particular, by the presence of norms of legislation requiring companies to disclose information on investment projects (their own or borrowed funds, Russian or foreign investments, total investment, share of attracted investments), as well as structure of open channels of communications (official sites), newsletters, etc. with information on investment in the territory. So, on the official website of the Administration of Taganrog the register of investment projects (total amount, the ones realized in prior periods, or are under implementation, or are expected to be realized in the future) and grounds are presented, as well as information about the auctions, catalogue of Taganrog producers divided by sector of activity, etc.

3. Organizational strengthening of interaction between the subjects of PIC management (port management, industrial enterprises and the territory administration). In our opinion, "development institutions", i.e. the rules of the game, have paramount importance for the formation and development of port and industrial zones. They focus not on all participants in economic or political life, but only on some of them, who were selected in a certain way (Guajava & Shogenov, 2009). One of the most effective tools to strengthen such collaboration is a public-private partnership (PPP).

RESULTS

Causal relationship between perspectives of growth and development and other perspectives is that:

- the development of human capital helps to ensure PIC enterprises and PIC management with qualified personnel, which increases internal processes efficiency and contributes to effective PIC management;
- PIC information support creates conditions of open access to business information of PIC management subjects (improvement of internal processes controllability), existing and potential investors (increasing of investment attractiveness and, consequently, increasing marketing perspectives);
- increasing marketing perspective and internal processes leads to the achievement of objectives and tasks of financial perspective (dependencies are described above);
- institutional strengthening of interaction of subjects of management, based on the creation of "development institutions" provides "targeted" financial, human, informational assistance in the development of the port and industrial area, increases the efficiency of its production and communication activities (from the perspective of internal processes), attracts investors (marketing perspective).

DISCUSSION

The existence of clear institutional environment is important prerequisite for motivating the private sector to participate in PPP (Bazhenova & Pivovarov, 2006). For PIC investment support there are institutional conditions of interaction between the two main leading actors: state and private capital. The institutional component reflects the risks, including investment, which along with investment potential is investment climate component of PIC.

This interaction can be assessed by the following indicators: the presence of vertically integrated companies-investors of PIC, including the industrial structure, the proportion of turnover, serving the needs of local businesses, the availability of the overall development PIC strategy. This strategy should be the result of close interaction of such organizational institutions of Taganrog as the city Administration, the Council on entrepreneurship under the city Administration, the Fund for support of entrepreneurship and competition development of Taganrog, Consulting group "expert Advisor", Taganrog enterprise development Agency. These institutions form the infrastructure of business support, which provides an integrated approach to the implementation of its requirements. This applies to financial, property, information, consulting and other types of support, and also provides coordination of the PIC subjects.

CONCLUSIONS

The study identified a number of methodological and applied problems in the formation of strategic management system for PIC investment support. BSC tool is widely used in different areas of regional administration. But in the scientific literature there are no studies, which explore the problem of PIC investment support and BSC as a tool for evaluation of its investment potential. The following methods have been proposed to resolve the identified problems:

- Study of the investment potential components of the PIC territory and their distribution on the perspectives;
- Interpretation of the concept of indicators coordination in the BSC;
- Justification of objectives, tasks and indicators of each of BSC perspectives;
- Detection and study of cause and effect relationships between BSC objectives, tasks and specific indicators of PIC strategic management;
- Justification of causality BSC indicators and construction of strategic map for increase PIC investment potential.

REFERENCES

Anfilatov, V.S., & Emelyanov, A.A., & Kukushkin, A.A. (2002). Models of the main functions of organizational and technical managementc. In A.A. Emelyanov (Eds.) *System analysis in management*. (pp, 209-251). Moscow: Finance and statistics.

Arutyunova, D.V., & Lankin, V.E. (2013). Structural simulation of the interaction of systems. *Proceedings of the Southern Federal University. Technical science*, 6 (143), 120-126, Taganrog.

Arutyunova, D.V. (2005). *Adaptive economic management arrangements of the University in the marketplace*. (Phd dissertation). Taganrog state University of radio engineering, Taganrog, Russian.

Boukreev, M. *BSC. Turning the concept into reality.* (2014, December 20) Internet page of "INTALEV". Retrieved: December 20, 2014, from http://www.intalev.ua/library/articles/article.php?ID=24932.

Bazhenova, V. S., & Pivovarov N. A. (2006). *State regulation of innovation and technology development in modern conditions.* Ulan-Ude: Publishing house of ESSTU.

Egorshin, A.P. (2004). The concept of strategic management region. In A.P. Egorshin, & D.S. Lvov, & A.G. Granberg (Eds.), *Strategic management: region, city, enterprise.* (pp. 128-179), Moscow: Economy.

Fedulova, E.A, & Kononova, S.A. (2014). Evaluating the impact of the implementation of regional investment strategies based on the balanced scorecard. *Siberian School of Finance*, 4 (105), 78-84.

Gogoberidze, G.G., & Mamayeva, M.A. (2011). Strategic opportunities for economic development of the Russian coastal and marine port and industrial complexes of the Baltic Sea. *Problems of Modern Economics*, 4 (291-294).

Guajava, A. S., & Shogenov, T. M. (2009). Institutional environment as a factor of economic growth. *Bulletin of Adyghe state University. Series 5: The Economy Is Issue, 1.* http://cyberleninka.ru/article/n/institutsionalnye-usloviya-kak-faktor-ekonomicheskogo-rosta#ixzz3T8Na17kD

Kaplan, R.S., & Norton, D.P. (2014). *The balanced system of scorecard. From strategy to action*. Moscow: Olympic Busines.

Kleiner, G.B. (2011). The main problems of the Russian mesoeconomics. In G.B. Kleiner (Ed.), *Meso-Economics of development* (pp. 33-41). Moscow: Nauka.

Kochnev, A.F. *BSC, KPI and other indicators*. (2015). Retrieved June 15, 2015, from http://iteam.ru/publications/strategy/section_27/article_4114/

Kuznetsova, A. I. (2010). *Infrastructure: Issues of theory, methodology and applied aspects of modern infrastructure development. The geo-economic approach.* Moscow: Komkniga.

Nedosekin, A. *The balanced system of scorecard (BalancedScorecard): pros, cons, problems of implementation*. (2015). Retrieved June 15, 2015, from http://balanced-scorecard.ru/node/591/linkintel.

Orlova, V.G. (2014). Macroeconomic factors of the investment potential of the port and industrial centers. *Proceedings of the XIX International conference: "Global economic processes"* (pp. 156-161). St.-Petersburg, Russian.St.-Petersburg Polytechnic University.

Orlova, V. G. (2014). Investment development of the territories of the port and industrial activity in the South of Russia. In A. G. Druzhinin, S. Kolesnikov, V. N. Ovchinnikov (Eds.), *South of Russia: institutions and strategy of modernization of the economy*. (pp. 296-302). Moscow: University book.

Popov, D. (2003). Evolution of indicators of enterprise development strategies. *Company Management*, 2 (69- 80).

Valev, E.B. (2009). Problems of development and interaction of the coastal areas in Europe. *Regional studies*, 1 (12).

BAIN & Company (2015, June 15). Website of the International Consulting Company BAIN & Company. Retrieved June 15, 2015 from http://www.bain.com/publications/articles/management-tools-and-trends-2013.aspx

Expert RA. (2015, February 1) Retrieved February 1, 2015 from http://www.raexpert.ru/rankings/#r_1108 (Date of access 1.02.2015).

ESTIMATION OF THE REGIONAL FOOD MARKET STATE IN THE CONTEXT OF IMPORT SUBSTITUTION

Evdokiya Lazarevna Dugina
Svetlana Yurievna Badmaeva
Sayan Gennadyevich Alexeev
Tatiana Aleksandrovna Korsun
East Siberia State University of Technology and Management

ABSTRACT

The article considers the urgency to research the state of developing a regional food market in the context of introducing economic sanctions by countries of the European Union, the USA, Canada and reactive actions of Russia in the form of food import embargo for some types of food from these countries. The article considers the economic content of the notion national and regional food market. It is shown that in Russia the import had been substituted in the 1900s, and in 2014 this got a new impulse. The import substitution is a complex of specific measures aiming at improving food availability and ensuring food safety of the country. The introduction of food embargo contributes to a more rational use of the agriculture and resource potential, and has a positive impact on the development of the food market of the Republic of Buryatia. The work analyzes import and internal consumption of food, and points to the decrease in the volumes of meat and meat products, milk, dairy and fish products, vegetables, and fruits. However, in spite of the fact that over the recent years food production has grown, the threat of the country food safety rises. As a consequence, strategic top priority areas of food market development focused on modernization and more efficient use of the agriculture and resource potential are offered.

Keywords: region, food market, import substitution, business environment, economic sanctions, food import embargo, food products, agriculture and resource potential.

INTRODUCTION

The modern Russia must entirely use its unique agrarian potential. Herewith, the main task is not only to ensure the population's self-dependence in relation to basic food products but also to recover the lost positions among the leading exporters of food in the world. The share of Russia is 9% of the global tillage, 52% of the chernozemic soil, and 20% of the global fresh water reserves. However, herewith, the Russian ratio in the global food production is inconsiderable. For example, it is only 5% for milk, and 2% for meat [18]. Due to this, in order to reliably provide the population of the country with the national food products and to strategically regulate internal and external threats, stability of the food market, the Doctrine of Food Safety was developed and adopted on February 1, 2010.

Besides, the fall of agricultural production resulted in the decreasing food production of processing enterprises operating in the agrarian sector of economy. Consequently, it had an impact on the consumption of basic food.

REFERENCES REVIEW

Theoretical and methodological aspects of forming and developing the food market were researched in the works of foreign and Russian researchers: Britten S., McIntyre V., Borisenko E.N., Goncharova V.D., Miloserdova V.V., Uchachev I.G. et al.

Regional aspects of forming and developing the food market are described in works of such Russian researchers as Altukhova A.I., Boyeva V.R., Golovatyuk S.M., Dugina E.L., Dorzhieva E.V., Mamediva O.N., Neznamova N.V., Zaynamova N.N. et al.

However, in spite of the fair number of research works, the study of problems and the development of the regional food market in the context of introducing the food import embargo remains urgent, especially when implementing the program on import substitution.

METHOD

The research object is the process of forming and developing the regional food market. In the real practice estimating the state of basic segments of the food region acquires a special attention in the context of food substitution.

The object under observation is the results of researching the state of food provision, in particular, volumes of production, import and consumption of basic food products.

During the research we used legislative acts, statutory documents that regulate the activity of state, production and commercial structures functioning in the agro-food area. To make the analysis, statistical data, materials of research publications, the Internet resources and research and methodic recommendations, developments of research organizations of the Russian Federation and the Republic of Buryatia were used.

The goal and tasks of the research were set by using a number of research methods: system, structural and logical, economic and analytical, monographic ones, etc.

RESULTS AND DISCUSSION

It is necessary to acknowledge that for the years of reforms, the mass import of food products has made Russia a considerably dependent country on import of many types of food.

According to the experience of foreign countries, food import was comprehensively substituted in the 1920s and 1980s in China, Iraq and Livia, in the 1900s in Brazil, Vietnam, Iran, Chile, etc. Herewith the import substitution was successfully built in international allocation, cooperation of labor taking, into account the impact of a number of geo-political factors that limit economic cooperation.

Russia started import substitution in the nineties of the previous century. Thus, in 1998 after the national currency devaluation Russia underwent a considerable process of import substitution. At that time the volume of import decreased approximately by 20% [7]. In 1990 this indicator moved to 28%. The next urge to intensify the import substitution was in the early 2014 when Ukrainian events were escalated, and a number of countries decided to introduce tough economic sanctions against Russia in relation to food products import [15].

To our mind, import substitution is a complex of measures taken within the economic strategy of the state development and aimed at creating the favorable competitive environment for national goods producers that substitute import food products by producing them in the country.

The introduction of economic sanctions by the European Union countries, the USA and reactive actions of Russia had a certain impact on the Russian and regional food markets development.

The implementation of the import substitution program includes a number of specific measures aimed at providing food safety. Above all, this is a number of urgent and independent measured aimed at decreasing the debt to agricultural producers on reimbursing the interest rates. The medium-term measures aim at implementing large-scale investment projects related to constructing new enterprises and objects of infrastructure: wholesale and distributing channels. It allows to rationally use the agriculture and resource potential for increasing the agricultural and food production volumes. A number of long-term measures aim at large-scale developing of agrarian enterprises [11].

According to the Rosstat, food products account for about one third of all commodities and services. This is 15% of the GDP amount, while the ratio of agricultural products is only 4% of GDP. Herewith, in 2015 the share of food import in the retail was 27%. Above all, it is explained by the tendencies in the global economy where anti-Russia sanctions remain the main ones [14].

Table 1 shows the estimation of the state of food import in the context of economic sanctions.

In 2015, as compared to 2014, it is possible to observe a considerable decrease in the volumes of meat and meat products, fish products, vegetables and fruits import. Besides, the import of dairy products, sunflower oil and salt considerably decreased. At the same time the import of palm oil increased considerably because national dairy products manufacturers use substitutes of natural raw materials to reduce the products prime cost and to maintain reasonable prices for ensuring consumers' stable and sufficient demand [17].

Table 2 shows the estimation of the state of main food import and internal consumption.

In this context the decrease in the food import volume resulted in losing the food safety. That is why a strategic priority of developing the food market is the focus on own resources aimed at enlarging and concentrating in order to more rationally use the resource potential [13].

In the current context, to a great degree, solving the food problem depends on stable functioning of the food market.

The state the food market development during becoming and improving was stipulated by the following peculiarities: unstable demand for food, differentiation of the population's income, non-elastic demand for food, and limited term of storing and consuming food products [1].

In spite of the fact that there are rather many definitions of the notion "food market" in the economic literature, to our mind, the food market is an integral dynamically developing system of rational formation, allocation, use and consumption of food resources that not only meets the interests of economic entities, but also ensures the food safety, as a whole.

TABLE 1
ANALYSIS OF FOOD IMPORT IN 2014-2015

Types of food	January-September 2015		Including September 2015			In %	
						As to September	As to August
	thous. tons	in % as to January-September 2014	thous. tons	in % as to		January-September 2014 in % as to January-September 2013	September 2014 in % as to September 2013
				September 2014	August2015		
Fresh and frozen meat	529	72.3	78.4	87.8	99.5	80.7	76.9
Fresh and frozen poultry	192	60.3	27.6	123.0	84.9	84.9	48.3
Fresh and frozen fish	288	59.6	37.8	78.7	122.0	94.9	70.1
Milk and uncondensed cream	185	77.5	20.6	77.5	84.3	122.7	120.3
Milk and condensed cream	145	105.0	15.2	90.7	78.5	81.9	92.7
Butter	65.5	67.9	6.4	78.8	81.8	114.7	85.2
Cheeses and curds	143	56.2	14.8	96.0	70.8	79.0	39.5
Fresh and chilled potatoes	541	80.4	1.2	56.9	30.1	155.1	80.6
Fresh and chilled tomatoes	535	76.6	7.1	27.4	70.4	108.2	67.1
Fresh or chilled onion and garlic	301	77.5	8.8	82.0	91.0	140.5	98.8
Cabbage	166	70.2	0.9	83.5	108.0	134.3	37.9
Fresh and chilled cucumbers and cornichons	87.0	64.5	.0	33.6	18.7	117.7	178.0
Fresh or chilled bananas	889	93.2	71.7	78.4	87.6	95.5	89.9
Fresh or dried oranges	325	93.6	19.9	67.2	106.9	95.1	168.3
Fresh or dried tangerines and citrus hybrids	328	81.9	9.9	54.5	125.0	104.9	154.9
Fresh grapes	151	74.2	38.7	77.9	109.5	94.7	115.4
Fresh apples	618	71.5	34.3	90.2	15.7	86.4	66.5
Corn	29.7	73.4	0.5	14.7	160.4	90.7	55.9
Palm oil	614	131.7	84.7	149.7	82.3	82.3	73.8
Sunflower, safflower or cottonseed oil	2.5	31.3	0.1	72.8	62.0	59.0	67.6
Coconut, palm-kernel or babassu oil	65.4	89.7	5.5	69.5	45.6	98.7	72.8
Raw sugar	495	89.1	18.3	78.3	171.4	140.2	99.1
Salt fit for human consumption	302	55.0	44.0	65.1	115.1	98.4	114.2

*Compiled according to the Rosstat: http://www.gks.ru/ [6]

TABLE 2
ANALYSIS OF FOOD INTERNAL CONSUMPTION AND IMPORT IN RUSSIA DUE TO INTRODUCING EMBARGO

Food	Internal consumption of food		Food import		
	total (tons)	Share of import from the countries that underwent embargo (in %)	total (tons)	From the countries that underwent embargo (tons)	Share of import from the countries that underwent embargo (in %)
Cattle meat	2,335,700	2.5	654,700	59,000	9.0
Pork	3,764,700	12.0	619,700	450,800	72.7
Poultry	4,250,800	8.0	522,800	338,700	64.8
Fish and sea products	3,557,800	14.9	1,014,300	530,500	52.3
Milk and dairy products (as calculated for milk)	35,701,724	10.2	9,433,300	3,640,000	38.5
Including cheese	832,885	30.0	416,573	249,880	60.0
Vegetables	15,850,000	5.8	3,100,000	916,135	29.6

* Compiled according to the Rosstat: http://www.gks.ru/

Peculiarities of the market functioning are stipulated by the fact that food is an important strategic resource. That is why the creation of stable food fund is the basis for strengthening the country's food safety.

The regional food market is an independent subsystem of the Russian food market. The mechanism of its functioning is stipulated not only by common but also regional peculiarities of the development. Above all, these are unique food resources, methods to produce and consume them in accordance with the mentality, level and quality of life of the population living on a specific territory.

The regional food market is a self-regulating system of economic relations between subjects within separate territories participating in the production, selling and consumption of food products taking into account the level of income, interests of counter-agents that ensure the country food safety in the context of import substitution [9].

The regional food market functions not only as a subsystem of the national market but also as a self-regulating system that based on the current agriculture and resource potential can meet the population's needs in high quality food products at the expense of own production and at affordable prices taking into account the population's income.

Besides, to a great degree, stable functioning of the regional food market depends on the level of the improvement of the inter-regional relationships quality. The volume and structure of food products import and export are defined, first of all, by the level of population's actual demand, supply of local food products.

Let's consider the state of the food market development through the example of the Republic of Buryatia. Like a number of other Russian regions, it cannot meet all needs of the population in high quality food products by its own production. Above all, it is related to the Baikal factor that causes production appreciation and consequently the increase in prices for various types of food resources. At the same time, the poor developed infrastructure causes higher losses taking into account that food products have a limited storage and consumption term. That is why the development of inter-regional relationships is important, and their strengthening contributes to filling the food market with high quality food products at affordable

prices. This generates the research of the level of provision of the food market with food resources in order to strengthen food safety [7].

The analysis of food products import dynamics and structure in the Republic of Buryatia shows that 70% of food products are imported from other regions. Thus, in 2013 Buryatia could entirely meet the population's needs in semi-finished meat by 98.9%, sausages by 89.3%, and bread and flour products by 98.9%. However, in 2014 in the context of introducing anti-Russian economic sanctions and Russian import embargo in relation to the EU countries, the situation on the food market changed. The population is provided with basic food products by 50-60% on average. This is 60% for meat and meat products, 70% for milk and dairy products, 36% for eggs, 100% for potatoes, and 80% for vegetables [12].

In 2014 as compared to 2014 more than 65% of meat and semi-finished meat, and tinned meat - three times more than for the relevant period of the previous year were imported to other regions. At the same time food products import for the specified period decreased by 6.6% (calculated according to: on commodities import and export) [8].

Besides, the food market of the Republic of Buryatia has almost lost positions of the pasta segment due to the bankruptcy of OJSC Ulan-Ude Pasta Factory. Thus, in 2014 on the food market of the Republic of Buryatia the share of meat and meat products share was 54%, dehydrated milk – 25-30%, cheeses – 5%, fish and sea products – 5-7%, confectionary– 2%, and oil – 1% [8].

In the context of the existing conditions the most important task for the agro-industrial complex is to activate import substitution of the agricultural and food products. In order to solve it within the action plan, it is planned to create private cattle farms in the Ivolginskiy and Mukhorshibirskiy Regions, two dry feed lots in the Dzhidinskiy and Khorinskiy Regions of the Republic, to construct vegetable stores in the Ivolginskiy and Mukhorshibirskiy Regions, slaughterhouses in the Tunkinsky and Yeravninskiy Regions, and to build a greenhouse complex in the Seleginskiy Region [2].

Besides, it is planned to implement investment projects on constructing the second line of the Vostochno-Sibirskiy pig complex, Buryatptitseprom LLC poultry production unit, Buyan LLC commercial dairy farm, as well as a production and logistic complex in producing and bottling the deep water of the Baikal. As a consequence, the food and processing industry will maintain the tendency of moderate growth of production. Herewith, the average annual tempos of the production growth will be 1.1 – 4.2% [3].

In order to strengthen the competitiveness of food enterprises, the Republic of Buryatia implements the target comprehensive program related to supporting goods producers [5]. This way, in 2012-2015 the Republic implemented a number of investment projects: Development of Capacities on Producing Sausage and Delicatessen Products at the Buryat Meat Processing Company LLC, Organization of Milk Processing Production in the Dzhidinskiy Region, Expanding Production Capacities on Meat Processing at EcoFood LLC, and Technical Re-equipment of Waffles Production at CJSC Konditerporm.

Besides, the following food enterprises reconstructed and modernized their production capacities: Kudarinskoe LLC, Bichurskiy Butter Plant LLC, Petropavlovskiy Meat Integrated Plant LLC and OJSC Moloko. These measures resulted in the growth of the agricultural and food production on average by 2.5-3%, and thereby ensured the increase in production of all commodity groups [3].

In addition, the foundation of integrated production structures in the agro-industrial sector of the region: Dzhidinskaya Meat Company LLC, APO Dzhidinskoe LLC, as well as the

modernization of CJSC Nikolaevskiy, Eco-Food LLC, etc. will contribute to strengthening competitiveness of the Buryatia food market. Due to this, the government of the Republic of Buryatia took the decision to provide the following organizations with state warranties to implement investment projects:

1. Garantiya-2 LLC – RUB 21 mln.,
2. CJSC Vostochno-Sibirskiy Pig Complex – RUB 623.7 mln., and
3. CJSC Togtuuti – RUB 10.5 mln.
4. Over the recent years new productions have been open in Buryatia
5. Selenga meat processing factory,
6. Pokata LLC, Pishchevik Agricultural Consuming Cooperative (Dzhidinskiy Region),
7. Peresheek LLC (Kiahtinskiy Region), and
8. Nadezhda LLC (Yeravninskiy Region).

In spite of the consequences of the financial and economic crisis that had a critical impact on some sectors of the republic economy, the social and economic development of the Republic of Buryatia for 2008-2015 is characterized by the advancing growth of basic macro-economic indicators as compared to the average Russian ones [4].

The Republic of Buryatia still remains a Russian dotation region. That is why the change of macro-economic indicators as a consequence of reducing the financial support from the federal budget causes the need to search for new top priority areas of the social and economic development of territories.

As a consequence of the act "On Protecting the Baikal Lake" and YUNESCO decision on determining the status of the "Global Population Lot", the food production is appreciated.

Prolongation of the economic sanctions by the European countries till the late 2016 and the Russian embargo for importing many types of food products open up new opportunities for the comprehensive import substitution in the country. Thus, according to the experts' estimation, losses of foreign companies from the Russian counter-sanctions since August 1, 2014 made up about EUR 120 bln. In this context large agricultural holdings of Western countries try to find new ways to promote food export to the Russian market, including re-export through Byelorussia and Kazakhstan [10]. The import substitution program is successfully implemented in a number of Russian regions: the Belgorod, Voronezh, Rostov, Kursk, Tambov Regions, the Krasnodar Territory, the Republic of Tatarstan – production of meat and dairy products, vegetables and fruits, the Arkhangelsk and Murmansk Regions – fish production. It allowed to substitute almost 70% of food import [16].

The creation of food chains includes development, production planning, processing, distribution among consumers. However, the creation of efficient food chains requires additional investment resources and time. Thus, for example, sheep breeding will require from 2 to 4 years, meat and dairy sub-complex and food enterprises - from 3 to 7 years subject to direct state support [19].

The food market of the Republic of Buryatia functions on the basis of developing inter-regional relationships. At the present time food products are supplied from 30 subjects of the Russian Federation, basically from neighboring regions of the Siberian Federal District. Suppliers of basic food products are large and medium-sized enterprises. As the share of small-sized enterprises still remains low, it is stipulated by a low level of their competitiveness.

To a great degree, the efficiency of the regional food market functioning depends on the level of interregional food relationships development, because they have a considerable impact on providing the population with basic high quality food products at affordable prices.

3.1. The food market and its structure were formed and developed under the influence of a group of negative macro-economic factors that affect above all the food production. In particular, these are growing tempos of inflation, crisis of non-payments of enterprises, organizations, population, and disruption of stable interregional relationships. Herewith, it is necessary to note that in the context of the introduced anti-Russian economic sanctions almost all mentioned factors have an impact on the state of the food market business environment.

Above all, this is the fall of the population's actual demand for national food products. Finally, it caused a number of negative consequences restraining the development of the food market: tendencies to naturalization of the population's consumption, especially crop products, and as a consequence, the decrease in the share of food products acquired in the trading chain, and accordingly the increase in the share of consuming own products. Under new conditions these tendencies come with a decrease in the range of the consumed products, substitution of food products that are more valuable for the diet by less valuable products. Above all, it is related to the re-allocation of the family budget for buying less caloric food products at more affordable prices. Herewith, it is necessary to note that this tendency is related to the redistribution the population's free time in favor of basic food production within home and private farming. In its turn, it affects the efficiency of functioning of the Russian food complex enterprises. Thus, according to the data of the Goskomstat of the Russian Federation, the ratio of own production in creating the food fund is 93% for potatoes, 74% for vegetables, 60% for meat, 50% for milk, and 43% for eggs.

3.2. At the present time like before private farms of the population produce considerably less grains, sugarbeet and other agricultural crops than large agricultural enterprises do. Herewith, it is necessary to note that the introduction of anti-Russian sanctions created specific pre-requisites to increase the volumes of national production and ratio of food commodities not only on the internal but on the global markets, too [20].

In the modern context, when implementing the import substitution program, the demand for food products remains relatively stable. Along with this, the consumption per capita is still far from rational and economically developed countries: Japan, Great Britain, etc. For example, according to the data of the National Fund of Consumers Protection, the average citizen of Russia consumes by 42% food more as compared to the average statistical citizen of economically developed countries and on average only 64% from the rational standards defined by the World Health Organization (WHO).

It is possible to observe that over the recent years there has been great differentiation in the population's average food products consumption per capita in families with different levels of income, composition and place of residence: rural or urban.

Besides, considerable change of the currencies rate and consequently the growth of prices for basic food products, tariffs for energy products, etc. affected the level and quality of the region population lives. Since January 1, 2016 the rates for some types of property taxes (transportation, land) have increased. In particular, the property tax is calculated in 28 Russian regions according to the cadaster price of the real estate. Finally it caused the increase in the size of the Buryat poor population from 16.9% in 2014 up to 17.9% in 2015. As the result of the decreasing work places and salary, the population's incomes considerably decrease. Thus,

according to the data of the "Public Opinion" Fund, above 60% of Russians have to save on buying food products [3].

Additionally, in the Republic of Buryatia in 2015 the situation is complicated by unfavorable weather conditions (fires and droughts) that resulted in catastrophic growth of losses in grains and vegetables and reduction of food production volumes.

CONCLUSIONS

Based on analyzing the state of the regional food market development in the context of import substitution, it is possible to define the factors that restrain its development. Under these conditions it is necessary to estimate the agriculture and resource potential, to reveal threats and to define opportunities of its more rational use. Taking it into account, it is possible to give the following recommendations: to research the mechanism of functioning and tools of its regulation, top priority areas of development. All these issues can be an object of the future agro-food researches.

ACKNOWLEDGMENTS

The research results stated herein were obtained within the grant "Young Researchers of the East-Siberian State University of Technologies and Management". The authors express gratitude to the management and personally to the Principal – Doctor of Economics Saktoyev Vladimir Evgenievich for the comprehensive support of the young researchers' activity.

REFERENCES

Mega tendentsii vzaimodeystviya ekonomiki Rossii i mirovogo prodovolstvennogo rynka pri vstuplenii Rossii v VTO [Mega Tendencies of the Russian Economy Interrelation with the Global Food Market When Russia Enters the WTO], 2014. Entrepreneurship, 6: 25

Demograficheskiy ezhegodnik Buryati [Demographic Annual of Buryatia], 2012. Ulan-Ude: Buriatstat.

Uroven zhizni naseleniya Respubliki Buryatiya i regionov Sibirskogo federalnogo okruga. Analiticheskaya zapiska [Level of Life of the Population of the Republic of Buryatia and Regions of the Siberian Federal District. Analytical Record], 2015. Ulan-Ude: Buryatstat, 53.

Official Website of the Ulan-Ude Local Authorities Date Views 26.05.2016 www.ulan-ude-eg.ru.

Official Website of the Head of the Republic of Buryatia Date Views 15.05.2016 glava.govrb.ru.

2015 Statistical Bulletin. Federal Service of State Statistics. Date Views 08.08.2016 www.gks.ru.

Dugina, E.L. and E.V. Dorzhieva, 2009. Stanovlenie i razvitie prodovolstvennogo rynka Rossii [Becoming and Development of the Russian Food Market]. Ulan-Ude, pp: 77.

Dugina, E.L., A.I. Borisenko and A.V. Dugin, 2015. Monitoring tsen na produkty pitaniya na rynke prodovolstviya [Monitoring of Food Prices on the Food Market]. In the Proceedings of the International Research and Practical Conference "Social and Economic Development of Regions: Problems, Perspectives", Ulan-Ude.

Altuhov, A.I., V.V. Drokin and A.S. Zhuravlev, 2015. Agroprodovolstvenniy rynok: noviy vektor razvitiya [Agro-food Market: New Vector of Development]. Economy of the Region, 3: 256-266.

Altuhov, A.I., 2015. Perspektivy importozamescheniya produktsii rossiyskogo APK v usloviyah zarubezhnyh sanktsiy. Problemy i perspektivy razvitiya agropromyshlennogo proizvodstva [Perspectives of Import Substitution of Products Made by the Russian Agro-Industrial Complex in the Context of Foreign Sanctions. Problems and Perspectives of the Agro-Industrial Production Development]. Penza: Penza State Agricultural Academy.

Ahmadov, M.A., 2014. Razvitie regionalnyh sotsialno-ekonomicheskih sistem v usloviyah importozamescheniya [Development of Regional Social and Economic Systems in the Context of Import Substitution]. Bulletin of the Rsotov State Economic University, 4 (48): 17-21.

Pivovarov, A.N., 2015. Buryatiya v usloviyah ekonomicheskih sanktsiy [Buryatia in the Context of Economic Sanctions]. Buryatia, Sept. 8.

Importozameschenie v Rossii: Arhiv novostey [Import Substitution in Russia. Archive of News]. Date Views 25.08.2016 newsruss.ru.

Saktoev, V.E., E.L. Dugina and S.G. Alekseev, 2016. Razvitie predpriyatiy pischevoy promyishlennosti v usloviyah prodovolstvennogo embargo [Development of Food Industry Enterprises in the Context of Food Embargo]. Bulletin of the Zabaikal State University, 22 (9): 125.

The Russian Market Threatens New Sanctions. Date Views 1.09.2016 finance.rambler.ru/news/2015-06-09/chem-groziat-rossiiskomu-rynku-novye.

Expansion of US Sanctions Will Have No Impact on the RF Economy Date Views 2.09.2016 rg.ru/2016/09/02/gref-rasshirenie-sankcij-ssha-ne-okazhet-vliianiia-na-ekonomiku-rf.html.

Blackout Loose. Date Views 2.09.2016 rg.ru/2016/08/18/reg-ufo/krymskie-syrovary-nachali-proizvodit-elitnye-syry-s-pleseniu.html.

The Government Will Continue to Import Substitution Program. Date Views 6.09.2016 rg.ru/2016/09/07/pravitelstvo-prodolzhit-programmy-importozameshcheniia.html.

It Is Necessary to Extend the Prodembargo. Date Views 1.09.2016 rg.ru/2016/08/07/eksperty-predlozhili-sohranit-kontrsankcii-na-dolgosrochnuiu-perspektivu.html.

Prodovolstvennyie resursy Rossii dolzhny formirovatsya v osnovnom na baze otechestvennoy produktsii [Food Resources of Russia Must Be Mainly Formed on the Basis of National Products]. Date Views 28.08.2016 www.kremlin.ru/events/president/news/6242

TALENT MANAGEMENT AS AN ESSENTIAL ELEMENT IN A CORPORATE PERSONNEL DEVELOPMENT STRATEGY

Oksana Nikolaevna Borisova
Anna Aleksandrovna Silayeva
Larisa Nikolaevna Saburova
Natalya Vladimirovna Belokhvostova
Antonina Pavlovna Sokolova
The Russian State University of Tourism and Service

ABSTRACT

Due to globalization, the variety of human resources in a company is becoming one of the most important factors which require closer attention to the talent management system. Talented employees can play a key role in maintaining the quality and integrity of the human potential of each company. Thus, long-term personnel development programs are becoming crucial since the personnel's skills and qualifications require continuous improvement. The topic of the necessity to have a talent management strategy is rather neglected by Russian companies and has not been studied well enough. I. Stalin said that "no one is indispensable" but this is not true. The problem is that, in contrast to the American and European practices which imply corporate appreciation and support for talented employees, most employers in the Russian market do not stick with their talented employees and ignore the importance of support, encouragement and development of talents, that is why employees do not stay long in those companies. The aim of this article is as follows: to develop recommendations for talented management in the competitive environment, to analyze the main approaches to the category "talent management"; to outline country-specific peculiarities and main approaches to talent management in the Russian Federation, Europe and the USA. Talent management technology is a new trend in human resources management, and, thus, the study of this topic is a topical new task. Implementation of talent management technology in the Russian practice will let companies increase efficiency of their motivation programs. The article provides an overview and analysis of the main terms for talent management, outlines the importance of talented employees in a firm, defines the main talent management approaches and strategies, analyzes the basic differences of business models for talent management in the American, European, and Russian practices. The conclusion provides the main points, results, and outcomes.

Key words: development strategy, talent management, competition, human resources.

INTRODUCTION

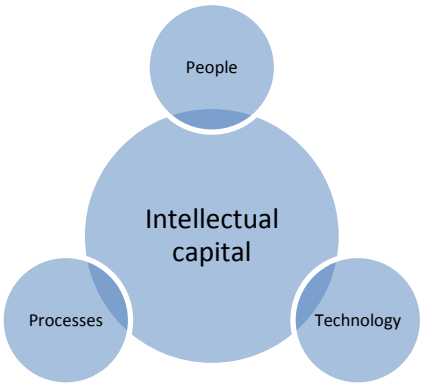
Due to the current crisis in the country and around the world, the existence of companies is under threat, competition is getting tougher, and advertising and customer service budgets are being reduced. Under such conditions, the fight for employees aiming at raising the corporate efficiency is becoming topical.

In the modern world, it is not easy to find, attract, and raise genuine leaders. And it is even more difficult to make them stay in your firm. The current century is changing our attitude to talented employees: nowadays, firms are not fighting for them, they are raising them [4]. Earlier, in the HR field, there was a term "bubble theory" which implied a talented employee making his "way through" on his own. Now, the "bubble theory" is being replaced by "talent management". Talented employees must certainly possess high potentials, be able to adapt to operational processes, and know the work process perfectly. Here arises the need to define the term “talent management".

METHODS AND RESULTS

The buildup of intellectual capital is one of the tools which may be used for solving problems. It includes knowledge, skills, and production experience of certain people, as well as such intangible assets as patents, databases, software, trademarks, etc. which are efficiently used for profit maximization and other economical and technical results (Figure 1). This is a total of all employees' knowledge and/or corporate tools increasing the total knowledge, i.e. everything that ensures economic competitiveness [1]. But these are talented employees who are the most valuable since they represent the ultimate competitive advantage.

Figure 1
CONSTITUENTS OF THE INTELLECTUAL CAPITAL



The term "talent management" had been first introduced by David Watkins of Softscape [5] in his article of 1998, and it was later developed and complemented in the work "Talent Management Systems" in 2004. Originally, the term "talent management" was used to define changes in the HR field focusing on "human potential or talent management" [9].
Talent management is a branch of HR dealing with search for and attraction of efficient employees, integration of new personnel, motivation and support for employees in order to achieve the current corporate goals.

In firms following a certain talent management policy, it is both the HR Department and corporate managers who are responsible for labor resources [2]. The process of attracting and retaining qualified employees being strategically important has been given the name of "war for talent" [3]. The English term is "Human Capital Management" ("HCM").

With the term "talent" having various definitions, it is rather difficult to form a consistent approach to human capital management. There are the following trends in defining talent management:

Talent as Aptitude

Talent is often perceived as a natural gift and mental aptitude, prominent abilities, and brilliance [6]. Talent is permanent and unique, it is given at birth, and knowledge and skills which it brings cannot be obtained without it [24].

Talent is a set of certain knowledge and valuable skills [6]

Which are necessary for any company. Talent is abilities and aptitude which can be developed by gaining experience and skills [20].
Sometimes, the first and second approaches are combined: talent is a total of human abilities, gifts, skills, knowledge, intellect, views, character, and assertiveness, aptitude to learning and growth [18].

Talent as performance

As a rule, talent is noted if a person can achieve some prominent results thanks to his or her abilities [6].

Within this approach, there is a more suitable definition for talent management according to which those are people playing a key role in the corporate success and occupying leading positions thanks to their abilities and performance [14].

According to McKinsey experts, talents are "the best and brightest" employees and it is the "foremost" 10-20% of employees who are the most valuable for the company. In any firm, 20% of employees ensure 80% of success. Those 20% of employees pertaining to Category A must be retained in the company and given more responsibility and independence. Category B includes 64% of employees, "average performers" but their total corporate contribution amounts to 16%. The last category - Category C - includes 16% of employees who ensure only 4% of the total performance [5].

Talent Is Quite Often Defined As Potential

A talented employee is a person who has the potential for further promotion inside the company, and potential leaders "focus on the future" [5]. Talent is a "strategic balance between performance and potential". In other words, talented employees are those who *demonstrate their prominent abilities, achievements, and growth potential.*

The interrelation between efficient corporate activity and personnel development has always been of great interest to management theoreticians and practitioners. But the category of talent has been neither developed nor taken into consideration. Talent was first mentioned in 1990 by the consulting firm McKinsey in its report "War for Talents" which became a matter of debate in corporate meetings [1]. Researchers found that the managers of leading companies realize talented employees' value and take it into account when managing the company's personnel [11].Figures 2 and 3 help translate the definition of talent into the field of measurable quantities. The term "talent management" is related to *"competency-based management"*. Competency implies knowledge, skills, experience, and personal qualities [6]. The latest

techniques include formation of a corporate competency structure, which also includes a competency glossary facilitating formation of job descriptions.

Figure 2
CONSTITUENTS OF A TALENTED EMPLOYEE

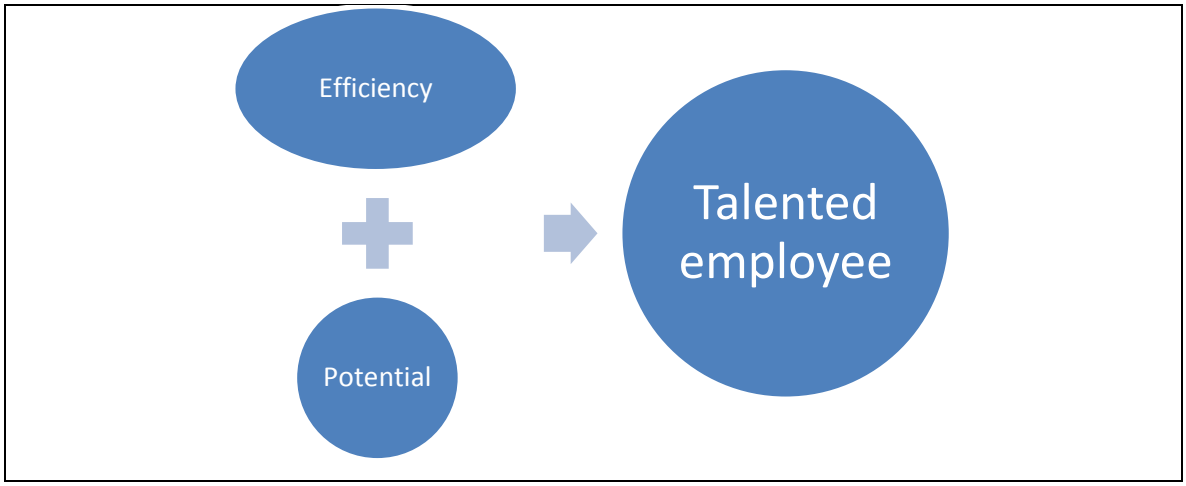
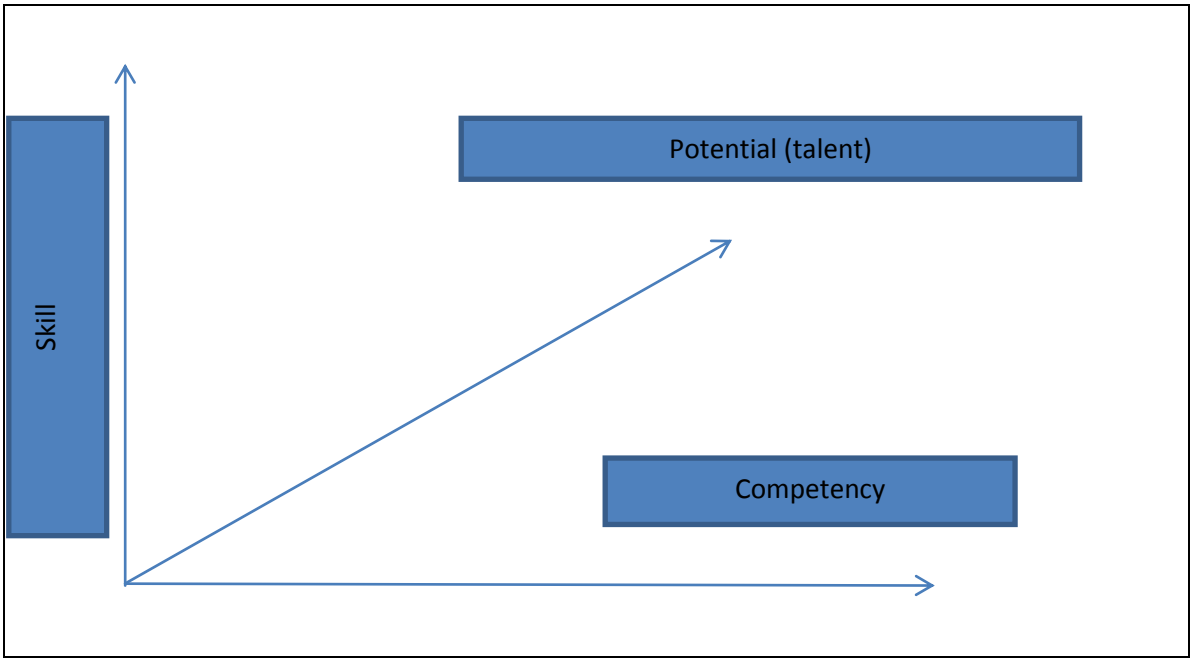


Figure 3
CONSTITUENTS OF A TALENTED EMPLOYEE



Looking at talent management from another perspective, one may define talent management as *a system aiming at raising competencies in critical activities through implementation and improvement of projects facilitating attraction, development, promotion and retention of talented employees.*

Practice has it as follows:

1. Organizations with more efficient employees have the right to select interesting projects (American Express, IBM) and achieve high financial results as compared to their competitors.
2. Under the current conditions, a lot of firms are seeking cost reduction. In this case, a talent management system could act as a tool improving the performance of any employee, as well as that of the entire firm [12].

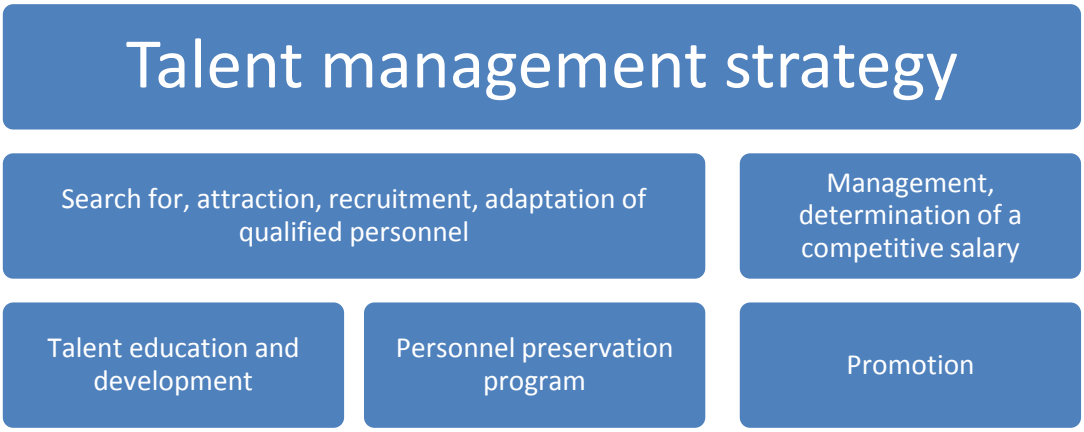
A great number of firms are just starting to use the concept of human capital management. In reality, only 5% of companies can declare having an outlined talent management policy, which emphasizes once again the topicality of this master research [17].

The main *goal of strategic* HCM is to attract new talented people [4]. This issue includes the following problems:

1. Development of a system facilitating search for and retention of the best employees.
2. Development of talented employees.

In order to develop an outlined talent management strategy and raise awareness for successors and human resources that already work for the company, all companies arrange meetings aiming at assessing talented employees who, in their turn, can get the company ready for various changes, such as: merging, expansion, or staff reduction. A "Talents review" defines talented employees' actual position and corporate successors' future needs.

Figure 4
TALENT MANAGEMENT STRATEGY



Organizations should have a special talent management system boosting their employees' motivation for using their own potential. *Talent management is a set of individualized management practices for high potentials or talent pool* [3].

Talent management strategy. Researchers consider *talent management to be a strategic trend* focused on the future and closely integrated with business goals [9]. In this regard, while building a talent management system, it is necessary to take into account not only the level of competencies and performance but also the employee's potential for further development and professional growth.

A talent management policy is maintained by automated personnel management systems such as HRIS (Human Resources Information System) or HRSM (Human Resources Management System).

In talent management, it is necessary to highlight the following interrelated trends allowing a complex approach for solving HCM tasks (Figure 5).

However, it is not enough just to find and identify a talented employee. It is also necessary to provide him/her with an opportunity to fulfill his/her potential for the company's benefit, of course.

Normally, to identify potentially talented employees (Hi-Po - High Potential), an assessment is performed (Figure 6).

The competencies model is directly interrelated with the corporate business policy. After assessment is performed, the Hi-Po pool is created. Each employee's development is ensured by formation of an individual plan; employees are invested in and promoted up the career ladder, after which their work is assessed. One should note that expenses necessary for improving a Hi-Po employee exceed those for usual employees.

Figure 6
AN EXAMPLE OF MANAGEMENT COMPETENCIES USED BY A LEADING COMPANY TO IDENTIFY HI-PO EMPLOYEES

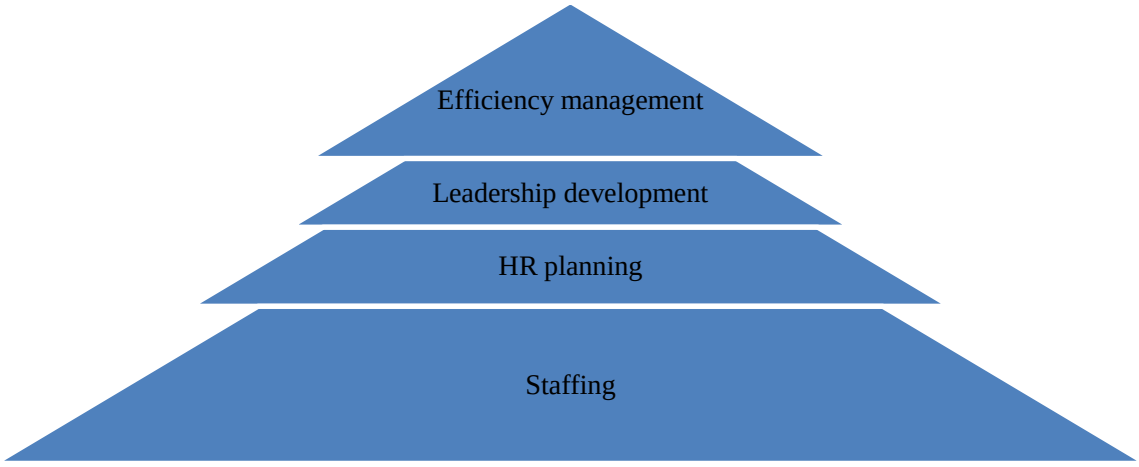
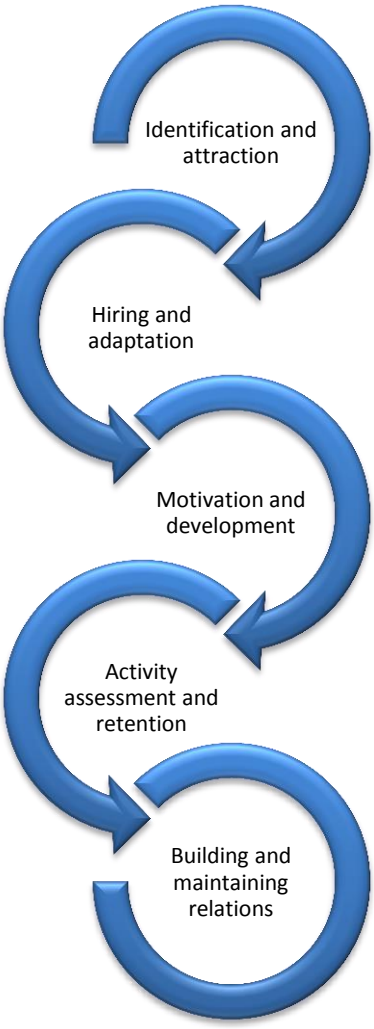


Figure 6
AN EXAMPLE OF MANAGEMENT COMPETENCIES USED BY A LEADING COMPANY TO IDENTIFY HI-PO EMPLOYEES

Each talented employee has his or her own life cycle (Figure 7). Drawbacks emerging on any stage of the talented employee's life cycle can cause him or her to leave the company.

Considering the experience of Russian organizations, one could note the formation of a replacement planning system (talent pool) and, very seldom, succession planning. The western experience shows that 100 most thriving organizations fulfill their talent management systems on the second or third level.

Figure 7
A TALENTED EMPLOYEE'S LIFE CYCLE



According to the research carried out by Fortune, the lists of values in organizations which are leaders in the market and those of average organizations are very different (Table 2). There are three levels of talent management (Table 1).

Talent management in average organizations is often on the first level and that in leading companies - on the second or third level. This approach to talent management (in Russia - talent pool management) is often characterized by the beginning of assessment (personnel assessment) and preparation of projects for their development with spending more tangible and intangible assets on that. But most companies are not ready to replace an employee who was hired a long time ago (even not a very efficient one) with a new employee (even if his or her potential is higher). Earlier, an employee's talent would be assessed by the administration, but nowadays this is often done by independent assessors.

Table 1
LEVELS OF TALENT MANAGEMENT

	I. Replacement Planning	II. Succession Planning	III. Talent Management
Task	Risk management	Strategic staffing and development	General succession and development
Target object	Key leading positions	Hi-Po	Entire organization
Assessment	Professional potential and activity	Assessment of progress in activity and leading competencies	All abilities and results matter
Task	Risk management	Strategic staffing and development	General succession and development
Career	Linear, basically functional	Cross-functional, cross-regional and cross-divisional rotation	Flexible, cross-functional both geographically and businesswise
Frequency	Annual review	Annual review with development planning	Continuous, with constant linking to other HR processes
Participants	Administrators	Managers	Participants include employees, HR specialists, administration
Employees' attitude	Consent	Approval	Participation

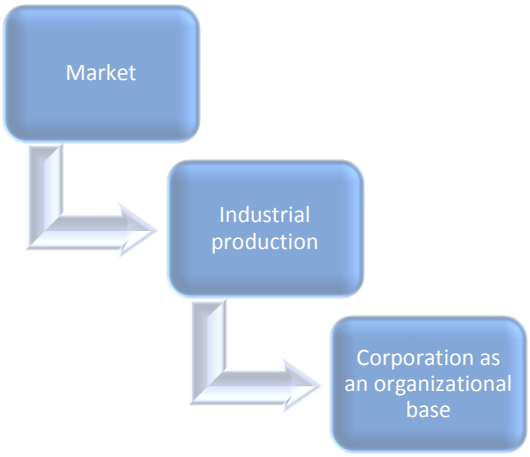
Table 2
COMPARISON TABLE OF VALUES OF DIFFERENT-LEVEL ORGANIZATIONS

Values 100 leading organizations	Values 100 average organizations
Teamwork	Risk reduction
Interest in customers	Attention to the management vertical
Unbiasedness towards personnel	Support from administration
Entrepreneurial attitude and innovation	Budgeting

Nowadays companies are in focus and the importance of talented employees is increasing every day. A business model defines practical measures to be taken to implement a talent management technology. Below are talent management techniques in different parts of the world, namely in the USA, European countries, and the Russian Federation. *Description of the American model and special conditions for performance.* The American management model is based on individualism. It is characterized by the cult of a lone strong personality, an individual is in the focus of attention. Management is based on the definition of individual goals.

The Anglo-Saxon school of management is based on three basic elements (Figure 8).

Figure 8
BASIC ELEMENTS OF THE AMERICAN MANAGEMENT MODEL [7]



This business model implies a significant focus on production management.
Capitalist mode of production implies:
- mass production;
- rationalization of production;
- integrity;
- resource efficiency;
- high performance;
- equality;
- hierarchical organization;
- financial resources [23].

Essence of approach

Firms following a certain defined talent management policy increase their profit by 26% more than their competitors [8]. A worked out talent management system is rather significant for achieving success in most industries.

The American writer A. Robertson defines talent management as follows. He notes that this is a set of tools for personnel management facilitating the attraction, efficient use, and quality of reproduction of employees' skills which allow them to make a contribution to the company's improvement. [24]

This implies an activity in personnel management aiming at attracting new employees into the innovative process, development of various motifs, and formation of creative potential in employees [23].

Administrators of many leading American companies declare that only 10% of the entire human potential depend on natural abilities. The rest 90% of an employee's talent is based on hard work and continuous practice. One of the quickest and cheapest methods of personnel preparation originated in the USA. Administrators using this method achieve better results by means of "growing" a talent from an average employee (Figure 10).
Figure 9 - "Growing" a talent from an average employee

Thus, having considered the talent management techniques used in the USA, one can conclude that:

1. The American talent management business model is characterized by:

Individualism;

Contractual business relations.

Figure 10 – 3
ISSUES IN THE FIGHT FOR TALENT IN THE USA

Currently, one of the most popular topics *in Europe* is fight for talent. A basic employee is an object requiring development and learning, which, in their turn, require investment. However, any fault made when choosing an employee can cost the organization a lot. These are talented leaders who give their corporations names which become famous all over the world, these are them who form their philosophy and culture. Certainly, technology must be perfect but these are individuals who found companies which later become prominent. High potentials are key assets and resources of any European organization.

The European model is a set of national models whose priorities are teamwork and multicultural environment. The European model is an intermediate position between two management cultures (Japanese and American).

The European business model is characterized by creativity and tolerance. It includes diverse approaches to corporate management dependent upon the country.

Within this ideology, quality is improved by means of total quality management which is a general organizational method for continuous improvement of quality in all organizational processes.

The European model follows a democratic management system. Its typical features are corporate culture and healthy environment. It seeks to improve organizational processes. The European model features quality management, reputation management, and knowledge management.

This business model is based on research and design, innovation and creativity.

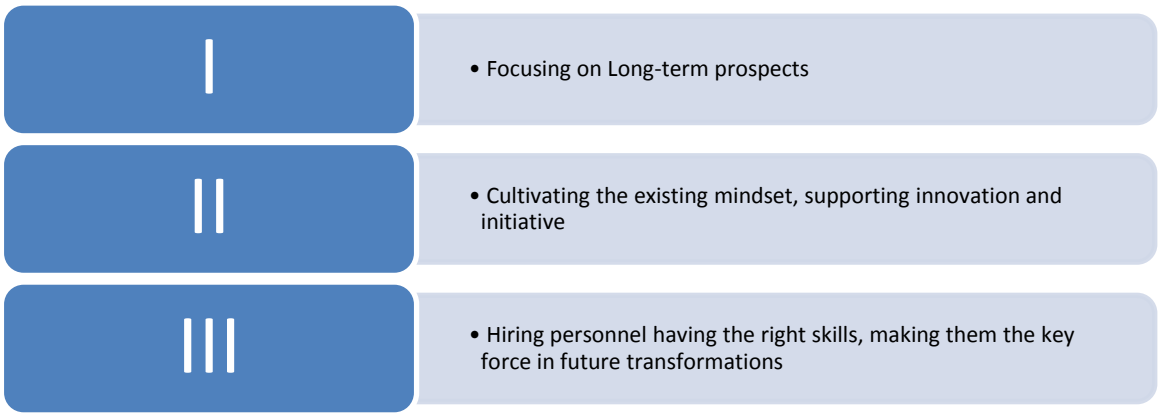
The focus is on the personnel. The youth is most relied on [9].

Nowadays, while demand for qualified employees is growing, lots of organizations use the marketing approach, which implies that 20% of customers bring 80% of the profit, and these

are exactly those 20% of customers a company should pay most of its attention to. The same is true for personnel management. In an organization, employees are ranged based on their contribution to the company's achievements and not based on the hierarchical principle. Companies are seeking to focus on those employees and provide them with special opportunities for their education and improvement of their qualifications.

As compared to attraction and selection of valuable staff, their retention and development are the most difficult processes. The main problem of enterprises is the lack of special subdivisions or employees responsible for the maintenance of a personnel-friendly environment and dealing with corporate culture issues. This is mostly done by managers of various levels or the first people of the organization. How one can facilitate development of talented staff is shown in Figure 11.

Figure 11
WAYS OF DEVELOPING TALENTED STAFF



Most companies, trying to implement a talent management program, start with hiring employees having the right skills, as they think, to occupy leading positions. But this is not always the right way to start, as tactics must begin with a strategic process implying a comprehensive view of talent management. An organization's strategy must be obvious even before the main objectives are outlined.

European researchers declare that a lot of organizations are afraid of non-fulfillment of their promises given to those ambitious and strong people who any employer is interested in. But comparing the western and national practices one can conclude that only 10% of organizations in the Russian market fulfill their talent management programs. This is usually due to trivial concerns accompanying any significant innovation in an organization or due to the old-school trade union mindset.

In terms of the European talent management business model, the current situation in the talent management field is characterized by the following statements:

1. The matter of talented employees is becoming more popular in Europe, since it is believed that these are talented employees who give their companies names which become famous all over the world.
2. The European business model gives priority to teamwork.
3. When implementing a talent management system, it is important to start with a strategic process.
4. When selecting an employee, it is necessary to take into account all factors since any drawback could cost the company a lot.
5. One of the attributes of talent is the ability to grow and develop, that is why when assessing an employee it is important to take into account both the actual level of his or her competencies and future potential.

6. Any employee is subject to development and learning and requires investment, and these are efficient employees who must be invested in.
7. A talent management system is most important for large enterprises with over 100 employees.
8. Retaining a talent in the company is the main difficulty in talent management, since such employees require serious motivation.

The roots of the Russian business model are found in the administrative command system. Employee encouragement is rather subjective. The Russian business model features kickback systems, hidden stimulation and shadow economy, intense advertising, predatory pricing policy (transferring the burden on the consumer), monopolization, intellectually weak management (despite the rather high intellectual level of the nation).

Table 3 shows that despite the population's rich work experience, high potential and determination, there is a weak managerial competency, peculiar mindset, technocratic approach to management.

Table 3
COMPARISON TABLE OF FACTORS CONTRIBUTING TO AND OBSTRUCTING DEVELOPMENT OF THE RUSSIAN MODEL

Factors obstructing the development of the Russian management	Factors contributing to the formation of the Russian model
Weak management competencies	High scientific and intellectual potential of the population
Peculiar corporate culture and mindset	Experience in state regulation of economy
Transition stage in the economy	Experience in mastering high technology
Traditional technocratic approach to management	Entrepreneurial attitude under liberal economics
	Nation's determination

Russian organizations are getting more engaged in talent management systems. However, such solutions are still being implemented and used only by large companies which have the opportunity to grow extra HRM abilities, and have a stable human resources management database, which displays the main processes and without which talent management would not operate [16].

However, systems integrators assure that the demand for automation of talent management processes has increased several times. The supply of highly-qualified employees and managers does not always keep up with the demand which grows together with the market. A comprehensive approach to Hi-Po personnel management is more interesting for large holdings, first of all, having means for building a career ladder and a fully-fledged corporate education system [22].

Nevertheless, there are also some interesting automation solutions for medium-sized and small businesses. Cloud services (such as Oracle Taleo, SAP Success Factors) are becoming widely used, enabling organizations to use the entire power of modern solutions for talent management without implementing heavyweight complex IT solutions.

Nowadays talent management is one of the common points between national and foreign companies in HR policy. A great number of Russian organizations plan to reconsider their strategy for intellectual capital management. In this regard, changes will mostly imply using non-financial means of reward to motivate talented personnel.

Western sellers (e.g. Oracle and SAP) have provided some very detailed solutions for talent pool management. For Russian companies, for instance, there is a whole series of systems by SAP which automate personnel performance management, education, staffing, and many

other things. Here, one should also mention SAP, ERP, and HCM Talent Management. Oracle, in its turn, offers Oracle HCM [3].

The Russian founders of HRM also support the "hot trend", including talent management tools in their systems. For example, Monolit: Personnel include modules for assessment of staff activity, talent pool preparation, individual growth projects.

CONCLUSION

Russian organizations are getting more engaged in talent management systems. However, such solutions are still being implemented and used only by large companies which have the opportunity to grow extra HRM abilities, and have a stable human resources management database which displays the main processes and without which talent management would not operate.

There is no common view of talent management among practitioners, and each organization defines "talent" differently: someone thinks it means individual employees with specific potential; someone considers staff in general; some companies say that "talent" is the abilities given to a person at birth; other organizations think that this is experience acquired in the course of time.

From the point of view of business processes in companies existing under the conditions of uncertainty, the modern situation in talent management is characterized by the fact that talented employees are an important asset for solving market tasks, as well as a hard-to-get resource, and it is also important to provide them with motivation and development [21].

A detailed approach to the search, selection, motivation, education, development, retention and promotion of an employee up the career ladder is very useful for efficient functioning of a company.

Nowadays, the talent management strategy focuses on development of employees' potential. The talent management system can be a tool optimizing the performance of each employee and the entire company. To build a certain strategy, one needs a frequent "talent review" [19].

Having considered the talent management technology in the USA, one can say that the American business model for talent management is characterized by:

Attitude to work in a firm featuring a short-term employment and frequent change of job based on material goods;

Economic factor (money) being the main motivation.

Some talent management elements and development prospects of that technology have been defined in the work. Employees are ready to suffer restraints, but the business world is rather skeptical about that method [15]. However, it is possible to raise the company's efficiency while following the mentioned recommendations.

Certainly, talented employees are in demand, at all times and in all places. That is why serious motivation is needed to make them stay. For instance, a great number of employees need support from top managers, which means one could arrange regular informal meetings with the organization's managers to discuss the current key issues.

For some employees the following things are also important: education opportunities, creation of real steps for career growth, provision of a system of privileges corresponding to the employee's needs, formation of a qualified mentor system, introduction of guidelines for personnel management and actual compliance with those principles, arrangement of a working

environment which will contribute to the company's prosperity, and arrangement of a material and non-material reward system.

Thus, one should note that an effectively made and implemented personnel development strategy guarantees a goal-oriented and carefully planned process for attraction, use and development of employees in order to achieve corporate goals. Currently, the term "talent management" is being used more often when talking about how to raise corporate efficiency [13].

The main source of profit for any company is its talented employees. Meaningful ideas, ambitious goals, innovative production, a popular product and promoted brand - none of these would work if the company did not have a good team.

Talent management is now a very important business constituent and not just one of things to be done within personnel management but a strategic trend which defines the main references and principles for the new approach to personnel management. [14]

In the world of globalization and available technology these are personalities who play the key role. A hunt for unique employees has already been started by a great number of companies, and one can say that the war for talent did not start 20 years ago but has been on all the time since talent is sometimes the thing that provides quite a significant advantage.

REFERENCES

Barron M. (2007).Analyzing Critical Positions for Talent Needs. - [Text] // Organization Development Journal. M. Barron. 25(4), 115-120.

Cappelli P. Talent on demand. P. Cappelli. [Text] Harvard Business Press, Boston, 2008.

Farndale E., Scullion H., Sparrow P. (2010) The Role of the Corporate HR Function in Global Talent Management. [Text] Journal of World Business. E. Famdale. 45(2), 161-168.

Lattner D. The Talent Imperative Boardroom Briefing. The Consultants Issue. D. Lattner. Winter. P32-34. [Electronic resource] - Access mode. - URL: www.directorsandboards.com/BBWinter07.pdf (accessed: 27.11.2016)

Lewis R.E., Heckman R. J.(2006) Talent Management: A Critical Review. [Text] Human Resource Management Review. / R.E. Lewis.(16) 139-154.

Miller D, Desmarais S. (2007) Developing Your Talent to the Next Level: Five Best Practices for Leadership Development. - [Text] // Organization Development Journal. D. Miller. 25(3), 37-43.

Ulrich D. The Talent Trifecta. - [Text] Workforce Management. September. / D. Ulrich. - 2006. - P. 32-33.

Abdukarimov V.I. Strategiya razvitiya personala v sisteme strategicheskogo menedgmenta [Personnel development strategy in a strategic management system] // Sotsialno-ekonomicheskiye yavleniya i protsessy [Social and economic phenomena and processes]. Tambov. - 2014. 9(8). 7-10.

Baranova T.S. Opyt upravleniya talantami v Rossii [Russia's experience in talent management]. In edited collection: Sovremennyi sotsium i sovremennaya molodezh [Modern society and modern youth]: aktualnyye voprosy [topical issues]. Materials form the Russian Research and Practice Conference. Federal State-Funded Educational Institution of Higher Professional Education "Perm State National Research University", Federal State-Funded Educational Institution of Higher Professional Education National Research University "Higher School of Economics". 2014. pp. 42-46.

Dimbaktiyeva E.Z., Kryukova A.A. Effektivnost sistem upravlenita talantami (2015). Mezhdunarodnyi studencheskiy vestnik [Efficiency of talent management systems. International Student Scientific Bulletin]. (4-2). pp. 322-323.

Dolgacheva M. Talentship - a strategic approach to HR. M. Dolgacheva. - [Electronic resource] - Access mode. - URL: http://www.trainings.ru/library/articles/?id=9820 (accessed: 26.11.2016)

Eremina I.Yu., Lavrov I.I. Upravleniye razvitiyem menedzherov organizatsii v ramkakh strategiy upravleniya talantami [Control over corporate managers' development within talent management strategies]. Works of I.M. Gubkin Russian State University of Oil and Gas. 2010. No. 2. pp. 152-160.

Kartashov S.A., Odegov Yu.G., Shatalov D.V. Omsk University Bulletin. Series: Ekonomika [Economics]. 2013. (1) pp. 85-94.

Latukha M. Talantlivyye sotrudniki v rossiyskikh i zarubezhnykh kompaniyakh [Talented employees in Russian and foreign companies]. // Economics Portal. / M. Latukha. - [Electronic resource] - Access mode. - URL: http://institutiones.com/general/2144-talantlivye-sotrudniki-v-rossiyskix-i-zarubezhnyx kompaniyax.html (accessed: 26. 11. 2016).

Nekrasova N.A. Upravleniye talantami (2011). Upravleniye chelovecheskim potentsialom [Talent management. Human potential management] (4). pp. 326-332.

Odegov Yu.G. Upravleniye talantami - realnost sovremennogo menedzhmenta(2015) [Talent management - modern management reality]. Omsk University Bulletin. Series: Ekonomika [Economics] (1), 92-99.

Panova A.G. Upravleniye HR-sistemoy na sovremennykh predpriyatiyakh [Managing an HR system in modern enterprises]: tutorial. FGBOOU WAUGH "RSUTS" - Moscow,75 p.

Serkova N.V., Antokhova M.V. Upravleniye talantami kak sposob povysheniya effektivnosti i konkurentosposobnosti organizatsii [Talent management as a means of increasing corporate efficiency and competitiveness]. Menedzhment i biznes-administrirovaniye [Talent management as a means of increasing corporate efficiency and competitiveness. Management and business administration]. 2015. (2)155-162.

Suchkova E.E. Formirovaniye strategii upravleniya personalom v usloviyakh innovatsionnogo razvitiya ekonomiki (2016) [Formation of a personnel management strategy in the midst of innovative economic development] // In edited collection: Innovatsionnoye razvitiye rossiyskoy ekonomiki IX Mezhdunarodnaya prakticheskaya konferentsiya [Innovative development of the Russian economy IX International Research and Practice Conference]. Ministry of Education and Science of the Russian Federation; Plekhanov Russian University of Economics; Russian Humanitarian Science Foundation. p. 295-298.

Ustinova I.S., Nikonova M.A. Upravleniye talantami kak innovatsiya v upravlenii personalom(2015) [Talent management as innovation in personnel management]. In edited collection: ekonomika Rossii v XXI veke [Russian economy in the 21st century]. An edited collection of scientific works of the XII Russian Research and Practice Conference "Economic sciences and applied research". In 2 volumes. Edited by G.A. Barusheva, L.M. Borisova; Tomsk Polytechnic University. pp. 92-96.

Baskina T. Tekhnika uspeshnogo rekrutmenta [Successful recruitment technique]. / T. Baskina, (2014) [Text] M.: Alpina Publisher. - 288 p.

Ivanova S. Poiski otsenka lineynogo personala(2014) : Povysheniye effektivnosti i snizheniye zatrat [Search and assessment of linear personnel: Increasing efficiency and reducing cost] S. Ivanova [Text] M.: Alpina Publisher,129 p.

Katzenbach D. Kompandnyi podhod: Sozdaniye vysokoeffektivnoy organizatsii [Building a highly efficient organization]. / D. Katzenbach, D. Smith. - [Text] - M.: Alpina Publisher, 2013. - 376 p.

Cohen A., Harcourt G. Sudba diskussii dvukh Kembridzhey o teorii kapitala (2012) [Whatever Happened to the Cambridge Capital Theory Controversies]. / A. Cohen. - [Text] - M.: Voprosy ekonomiki [Economic issues]. (8) pp. 4-27.

PECULIARITIES OF STAFFING PROVISION OF RUSSIAN MUNICIPAL SERVICES' ACTIVITY

Elena Ivanovna Danilina,Moscow Technological University
Zhanna Mingaleva,Perm National Research Polytechnic University
Yana Ivanovna Malikova,Vologda State University

ABSTRACT

The system of municipal management bodies formed at the present time in Russia aims at providing stable growth of the population's level of life, increasing social activity of citizens, as well as fuller implementation of the creative potential of self-governance and self-organization of all members of the local society. The key element and driving force for successful implementation of these goals is municipal service staff. The article reveals problems related to forming staff composition of officials working for the Russian municipal government bodies at the modern stage. It analyses the dynamism of the size and structural indicators related to the state of the municipal service staff. It sets issues about forming the staff reserve of the municipal service, staff provision and organization of the activity of municipal services in Russia. It analyzes methods related to the population's estimation of the quality of local government bodies' work. The analysis was made by using the data of foreign countries.

Keywords: staffing; personnel policy, local government, municipal management, municipal service, evaluation of the efficiency.

INTRODUCTION

At the present time subjects of the Russian Federation continue reforming the system of local government bodies including the formation of a new system of providing local government bodies with staff. Staff of the municipal management is an important component of the general mechanism of public management that intends to meet not only the interests of the local society but also to achieve strategic goals of the public management on the regional and general national levels as a whole.

The municipal service is a basis of the staff composition of local government bodies, and municipal staff makes up a specific social and professional group. It is peculiar of the legal status, as well as the requirements set to this category of employees to provide their efficient fulfillment of functional duties under conditions of a specific territorial formation.

The state of staff including the level of professionalism of municipal employees, their moral qualities directly define the nature of municipal administering practices, ability of municipal structures to implement local interests and their own decisions. Thus, it is actual for the modern activity of municipal services to select and complete the staff, taking into account professional requirements and competences specified in relation to municipal officials.

THEORY

It is in the middle of the previous century when issues related to the competence of the officials were widely considered in works of M. Weber, L.Gawthrop et al. (Weber, 1947; Greenwood, 1962; Gawthrop, 1969). In his works E. Greenwood developed so called ideal characteristics of the municipal officials' professionalism. In includes five basic elements (Greenwood, 1962), and is actual for Russia, especially within solving the issue related to increasing the qualification of the employees who occupy state (municipal) offices, assessing their activity, and taking decisions about their promotion (career growth), etc.

Foreign countries have accumulated great experience on studying theory and practice of solving problems related to the municipal service efficiency (Rosenberg 1985; Galup et al. 1997; Ashton, Kushner, Siegel 2007; Chen 2014; Marcinkevičiute and Žukovskis 2014). It is also of great interest for Russia.

Modern Russian researchers also pay much attention to employment issues in local government bodies including on the municipal level (Anosova 2014; Eroyan et al. 2015; Kolesova 2014; Malik, Melnikov 2015; Ogneva 2014; Uskova, Belous 2006).

METHODOLOGY

The research was made by using methods of statistical analysis, comparative analysis, references analysis, sociological polls, and questionnaire survey. The dynamics of data about the number, structure, length of municipal officials' employment, their age, education and other parameters was calculated on the basis of the Rosstat information (Rosstat 2015). This information was obtained in accordance with the methodologies on collecting data, calculating indicators of the total number of employees and persons who occupy state (municipal) offices and offices of the state civil (municipal) service, as well as calculating the dynamics of the number of employees who occupied state (municipal) offices and offices of the state civil (municipal) services approved by Rosstat. The specified data is collected on the basis of statistical observance that up to 2014 was carried out once per 2 years, and starting from 2015 – once in 3 years at the end of the relevant year.

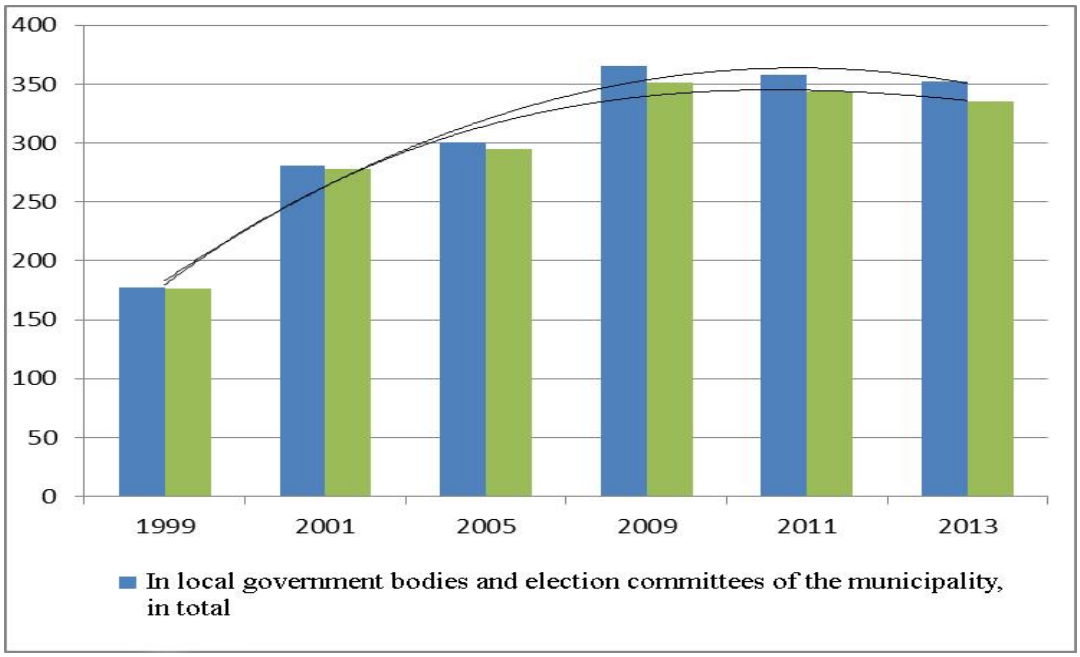
The state of specific parameters in relation to offices of municipal officials was estimated in accordance with the standards of Federal Law No. 25-FZ "On Municipal Service in the Russian Federation" dated March 2, 2007 (Federal Law, 2007).

In order to specify qualitative characteristics of statistical data and the conclusions that were made, the results of the sociological research "Staffing Potential of Local Government Bodies" of the All-Russian Council of Local Government were used (Staffing of Local Government, *2016)*, and the results of implementing the federal program on creating the staff reserve of the state and municipal service (Federal Program "Reform and Development, 2009), the project "Staff Reserve – Professional Team" (Staff Reserve - Professional Team 2016), and materials of the All-Russian Congress of Municipalities (All-Russian Congress of Municipalities, 2013) were analyzed.

RESEARCH

The analysis of the aggregated data of Rosstat for 1999-2013 showed that for the analyzed period the number of municipal officials in Russia had gradually increased. Herewith, it is possible to single out several prominent spates related to the quick growth of the number and a spate related to decreasing the number of municipal officials. The first spate of the growth is related to 1999-2001, and the second one - to 2005-2007. It is related to the fact that the country moved to the two-leveled model of local governance provided by Federal Law "On General Principles of Organizing Local Governance in the Russian Federation" No. 131-FZ adopted in 2013 (Federal Law N 131-FZ 2003). The most considerable decrease in the number of municipal officials in Russia is related to 2010-2013 as a result of the task on decreasing the public governable apparatus set in 2009 (The Federal Program "Reforming and Developing", 2009). It caused a little decrease in the number of municipal officials that, nevertheless, considerably exceeds their number before the reforms: as on the beginning of the II half of 2016 the number of municipal officials in all local government bodies was 294.7 thous. Persons, while in 1999 the number of municipal officials was 177.6 thous. persons. Herewith, the staffing level is 96.3% (Federal Portal, 2016). Herewith, the largest number of persons involved in the municipal services in Russia was in 2008 – 367.6 thous. persons (Rosstat, 2015).Figure 1 shows the changes of the number of persons who occupied offices in the russian municipal services in 1999-2013 (compiled according to rosstat, 2015**).**

Figure 1
CHANGES OF THE NUMBER OF PERSONS WHO OCCUPIED OFFICES IN THE RUSSIAN MUNICIPAL SERVICES IN 1999-2013



It is possible to see from Fig. 1 that for the period of reforms the gap between the number of persons occupying offices of the municipal service in the municipalities' representative and executive bodies considerably increased (the difference between two columns of the diagram in every year under consideration is most of all expressed in 2009, and shows the number of persons who occupied the offices of the municipal service in representative bodies of municipalities). The trend line of Fig. 1 shows the formation of the gap between these two structures.

The tendency related to changing the number of persons occupying offices of the municipal service in Russia is especially vividly observed in indicators related to the changes of the number of employees who occupied municipal offices and offices of the municipal service according to the branches of government. Table 1 shows analytical data [calculated by the authors according to (Rosstat, 2015, p. 48)].

Table 1
DYNAMICS OF THE NUMBER OF EMPLOYEES WHO OCCUPIED MUNICIPAL OFFICES AND OFFICES OF MUNICIPAL SERVICE IN THE RUSSIAN FEDERATION IN 2001-2013

Government bodies	2001	2005	2009	2011	2013
In local government bodies and election committees of municipalities – in total	1	7.24	21.39	-1.81	-1.67
In representative bodies of municipalities	1	144.00	86.89	5.26	2.50
In local administrations (executive authorities of municipalities)	1	6.01	19.19	-2.14	-2.36

As Table 1 shows, as a whole the maximum growth of the number of employees who occupied municipal offices and offices of the municipal service in the Russian Federation (21.39%) was in the period of 2005-2009 (the highest value for the whole period under analysis), and after 2009 it is possible to observe its stable decrease. Herewith, the most intensive growth of the number of employees who occupied municipal offices and offices of the municipal service in the Russian Federation for the whole period under analysis was observed in the representative bodies of municipalities; thus, since 2001 to 2005 the total number of municipal employees in the Russian Federation increased almost 1.5 times, and by 86% for the period since 2005 to 2009. And even fulfillment of the task set in 2009 and related to decreasing the public management apparatus caused only the reduction of the tempos of growth of the number of employees who occupied state (municipal) offices and offices of the state civil (municipal) service in representative bodies of Russian municipalities but not to the absolute decrease in their number. In 2009-2011 the tempo of growth had been 5.26%, and in 2011 -2013 it decreased by 2.5% on average. However, it remained positive. Such considerable and quick growth of the number of persons who occupy offices of the municipal service in Russia in 2005-2009 caused the formation of specific tendencies and characteristics of municipal staff.

RESULTS

As a result of the research, the following tendencies and characteristics of the Russian municipal service staff have been revealed.

Firstly, the modern state of the Russian municipal service staff is characterized by a higher average age of the municipal official (43 years old) as compared to the average age of state civil employees in the state management apparatus as a whole (39 years old).

Secondly, a considerable disproportion in the structure of the number of municipal employees in Russia according to the term of employment in management bodies was formed and is maintained. The analysis shows the presence and deepening of the situation related to the polarization of indicators to the term of employment: the majority of municipal officials have a low or, on the contrary, a considerable experience of working for the government bodies (See Table 2) (compiled according to Rosstat, 2015).

As Table 2 shows, about ⅓ of municipal officials have the employment term of above 15 years. Besides, almost ⅓ of all staff of the Russian municipal management have the term of employment of up to 5 years, and 25% - from 5 to 10 years. As a result, totally above 50% of municipal employees in Russia have the term of employment of less than 10 years. In a number of cases the lack of the required experience affects the fulfillment of official duties by municipal officials. It is enhanced by the lack of the specialized professional education.

Thirdly, fast growth of municipalities caused the deficit of qualified staff of the municipal service. In Russia there is a difficult situation related to the level and quality of professional education in the municipal service and its sectoral specificity. According to the data of Rosstat, in 2013 5,084 municipal officials did not have even the secondary-level education, and only 85% of municipal officials had higher education (*Rosstat,* 2015). To compare, the share of employees who have the higher education related to the state civil service is 92.4% as a whole. Besides, the majority of staff of regional administrations have specialized higher education that does not comply with the relevant activity they currently perform (*Staffing of local government 2016*). The analysis has shown that for successful work at the office they occupy a lot of municipal officials need to obtain knowledge in Economy, Law, Computer Science, Social Management, Psychology, and Records Management.

Table 2
ALLOCATION OF THE NUMBER OF MUNICIPAL OFFICIALS IN RUSSIA ACCORDING TO THE TERM OF EMPLOYMENT IN GOVERNMENT BODIES IN 2014

Term of employment	% in the total number of municipal employees
< 1 year	8.2%
1-5 years	22%
5-10 years	25%
10-15 years	16.2%
>15 years	28.6%

Unlike foreign countries where there are age-old traditions related to complying with professional qualification requirements to municipal officials (employees of local government and management bodies), in Russia there are no such stable tendencies.

Consequently, the system of professional preparation and re-training of the municipal service staff is carried out in various municipalities at the discretion of the local management. By contrast, in foreign countries there is considerable internal departmental preparation of municipal staff. Herewith, professional area of the basic education for accepting for the municipal service differs depending on the country. Thus, in the USA state officials who have technical and scientific education prevail, in Great Britain and Germany – those with legal education, and in France – those with economic education (Ogneva 2014). Moreover, many Russian municipalities (especially rural and small urban) still form the staff reserved for the municipal service formally, and qualification requirements to the individuals who occupy municipal offices are not complied with. Besides, the task related to the rotation of management staff between the government levels has still been solved weakly.

Fourthly, in terms of the age composition of the municipal service officials there is the following situation. As stated above, the average age of municipal officials is 35-45 years old. However, herewith, on the level of the top officials of regions the age group that is above 45 years old prevails, and the number of young people aged up to 25 and employees aged from 25 to 35 years old is low in municipalities (*Federal Portal 2016*).

Fifthly, in the Russian municipal service there are obvious gender disproportions. The analysis showed that at the present time mainly women work in Russian local government bodies (70% of the total number of employees). However, men occupy higher administrative offices: men occupy 69% of municipal offices of the representative government bodies and local administrations; this share is 51% of men in terms of top offices in local administrations (*Federal Portal, 2016*).

Sixthly, at the present time there are disadvantages in the legal provision of the process related to organizing additional professional education of municipal officials (Agibalov, Agibalova 2011; Bokov 2009; Bozhenov 2009). The current standardized legal basis must be improved. Municipal officials are still trained to the degree the subject head understands the importance of training. It is stipulated by the fact that qualification requirements to offices and principles of correlating qualification requirements according to the education level for municipal officials can be specified by regions themselves unlike state officials (*On Additional Professional Education, 2007*). It gives municipalities room in issues related to the staff provision. However, in a number of cases it decreases qualification requirements to employees and criteria of their labor estimation.

The estimation of qualitative parameters allowed to reveal basic problems in the current state of staff on the municipal level in the modern Russia. The research showed that at the present time there was a complexity in forming the staff policy in the Russian municipal service. Among a diversity of problems in this area, it is necessary to especially single out the lack of the system approach to forming the staffing policy on all levels of the state government and management, the lack of the system on monitoring the state of the staff potential, and archaic character of methods related to the work with staff that are still based on the bureaucratic approach.

The main problem of the modern staff situation in Russia is the enhancement of contradictions between the current level of professionalism of municipal officials, its structure, stereotypes of the management activity, and modern requirements to managing the development of the society. In order to eliminate this complex of contradictions, it is necessary

to put into the municipal management practice an essentially new system of requirements to the managers' professionalism on the basis of the innovational approach that is widely used by other subjects of society and economy (Danilina, Mingaleva 2013; Mingaleva, Danilina 2014). Table 3 shows the comparison of new and old approaches to professional competences of municipal officials.

Table 3
BUREAUCRATIC AND INNOVATIONAL APPROACHES TO DEVELOPING THE MODEL OF MANAGING WITHIN RUSSIAN MUNICIPAL SERVICE

Bureaucratic approach	Innovational approach
Special attention is paid to the process of management	Basic emphasis is made on problems of the society
Basic emphasis is made on the functional part of the management process	Basic emphasis is made on the content of the management process
The official perceives himself as a principle and dominating subject	The official perceives himself as a part of the society
Officials passively perceive knowledge and information	Officials actively perceive knowledge and information and participate in their creation
Emphasis on the "know what" principle	Emphasis on "know how", "know what", "know why" and "know for whom" principles
Knowledge is transferred by experts	Knowledge is developed together with experts and specialists
Management goals are set by the top management and must be strictly complied with	Goals of management may be subject of agreements and are discussed
Faults are punished	Faults are allowed and perceived as a means of development, and serve to learn a lesson
Events are thoroughly planned, and their non-fulfillment is punished	Plan of events allows fluctuations from the demanding schedule due to objective circumstances

Insufficient professional preparation of municipal staff affects the fulfillment of many functions of municipalities and local management bodies, including the efficiency of organizing state purchases, whose function is acknowledged by foreign researchers as strategic in state and self-government establishments (*Patrucco, Luzzini, Ronchi, 2016*).

DISCUSSION

In the current context the ability of local government bodies to organize and coordinate functioning of all subsystems of the municipality, as well as to reveal objectively existing needs of the local society in obtaining the state support is crucial for ensuring high quality of life. It is possible to solve many problems related to providing the quality and efficiency of the municipal service on the basis of active purposeful work related to increasing professionalism in the activity of municipal staff. Positive foreign experience can be useful in this aspect (Laurinmyaki, Linkola, Pryatta 1996; Local government 1995; Baranova 2000).

For example, at the present time in Germany municipalities employees and citizens widely interrelate by using the Internet (*In Germany found 2012*). For this purpose websites of municipalities regularly organize online polls of citizens on various issues related to the activity of municipalities and estimation of the municipal environment quality: safety level issues, educational issues, problems on street noise level, air and basins pollution, problems

on cleaning streets and utilizing everyday wastes, etc. Such form of work is called "digital consultation". Besides, municipalities organize local conferences for citizens of the territories under interest. Their members include the employees of the municipalities' administrations who are responsible for this block of issues (safety, medical services, etc.), burgomaster, and deputies. Municipalities use the data of pools and votes further to correct plans and programs related to developing the municipality according to the relevant area of activity.

In addition, to obtain information about the citizens' opinion about the areas of municipalities' work, special brochures are compiled. They intelligibly state basic areas and priorities of spending funds. These brochures are sent in advance to every house to collect notes and offers. It is typical to make up and distribute the municipality budget draft. Thus, German citizens can actively participate in taking decisions on many local issues, first of all, in terms of self-taxation, municipal improvement, defining the procedure of local holidays and competitions. They can also initiate the development of municipal strategies and programs.

Another area of wide use of Internet opportunities is related to poling citizens and voting about the quality of local government bodies' work, revealing the opinion about the work of certain officials and employees of local government bodies, as well as municipal services. Such form allows citizens to rather actively and efficiently influence municipal officials in relation to all key issues of municipalities' activity, although citizens cannot take decisions on completing the municipal staff.

Thus, for the efficient activity of management staff, it is necessary to estimate its abilities and potential possibilities, to create "transparent", open and efficient system of staff estimation both by top bodies, and the society – a complex system that can reliably confirm professional competence and readiness of state officials to fulfill their functions. However, the current system of municipal order for preparing staff for the state civil and municipal service remains incomplete. Particularly, areas of professional preparation and higher educational establishments are often selected by top managers of local government bodies on the basis of their ideas, preferences, and interests, or it is done on the random basis according to the principle of the smallest expenses (the agreement is concluded with the educational establishment where the fee is lower, herewith, the rating of the educational establishment is not taken into account). Besides, as it was stated above, the possibility of regional and local powers to define the criteria of professional level of municipal staff within general parameters of qualification requirements to offices established by the Federal Law "On Municipal Service in the Russian Federation", as well as to determine principles to correlate qualification requirements according to the level of education for state civil and municipal officials gives much room in this area. Unfortunately, it often causes negative consequences because the volume, composition and structure of professional knowledge of municipal officials must correlate with the list of obligations imposed on them. It is rarely complied with.

CONCLUSIONS

As a result of the research, it has been determined that in the context of reforming the local government in Russia it is possible to observe the deficit of qualified and competent employees. One of the basic areas related to improving the organization of local government must become solving the problem on insufficient number and quality of municipal staff, including on the basis of forming the staff reserve and rotation of management staff between the levels of public power. The formation of the highly professional and competent staff of the municipal service with the relevant staff potential, optimization of managing its development is an essentially important condition of successful implementation of the local government reform and solving local issues.

The staff of municipal bodies undergoes the impact of changes in the political and administrative system, and staff practices of the regional political and administrative elite. The strategy of forming and rational use of the staff potential have a special impact on the state of the staff provision of the municipal management system and level of management abilities of municipal government bodies.Besides, qualitative characteristics of municipalities themselves have a great impact on the staff policy. They can be relatively favorable, medium-levelled, dotation or depressive. In addition, municipalities differ according to such factors and criteria as natural resources, demographic, ethno-cultural peculiarities, and other. It also has an impact on forming the staff provision of the activity of municipal services in Russia.

During the research it has been revealed that at the present moment many municipalities (especially small urban and rural) form the staff reserve only formally.

Studying the foreign experience related to organizing the activity of local government bodies and municipal services (in particular in Germany) showed that such experience could be used in Russia.

However, successful experience must be taken into account and adapted by applying various paradigms of management in various countries, particularly differences of methods and approaches of management in the context of the federative system or higher centralization within the unitary state.

It is reasonable to use the approach to organizing the activity of municipals services via the category “process” but not on the basis of the indicator related to the municipal employees’ qualification or a system of motivating municipal employees. Openness of the municipal government, contentment of citizens with the activity of local government bodies and the work of their employees are core elements of organizing the system of municipal services functioning abroad, and it can be used in Russia. As a whole, regular polls of citizens can be used as a tool to estimate the quality of the municipalities and local government bodies’ work.

In order to solve tasks in the area of providing municipal services and estimating the quality of the municipal service’s work, the experience of using computer technologies can be applied most successfully. Herewith, the system of preparing and re-training staff can be comprehensive, perspective and obligatory for all local government employees.

ACKNOWLEDGMENT

The work is carried out based on the task on fulfillment of government contractual work in the field of scientific activities as a part of base portion of the state task of the Ministry of Education and Science of the Russian Federation to Perm National Research Polytechnic University (the topic # 26.6884.2017/БЧ "Sustainable development of urban areas and the improvement of the human environment").

REFERENCES

Agibalov, J.V and O.J. Agibalova, (2011). Training and Retraining of Cadres of Municipal Management: Practice, Problems and Ways to Improve. Region: System, Economy, Management, 4(15): 145.

All-Russian Congress of Municipalities (OKMO), (2013) Date Views 23.11.2016 www.rncm.ru.

Anosova, V.V, (2014) Municipal Staff: Problems and Prospects of Realization of Powers. Theory and Practice of Social Development, (4)172.

Ashton, M., J. Kushner and D. Siegel, 2007. Personality Traits of Municipal Politicians and Staff. Canadian Public Administration, 50(2) 273-289.

Baranova, K.K(2000)Fiscal Federalism and Local Self-government in Germany. Moscow: Delo iservis, pp-240.

Bokov, M.B, (2009)Frames Local Government: Present and Future. Monitoring of Public Opinion, 3(91) 53-71.

Bozhenov, C, 2009. Challenges and Practice Development Program for the Development of Municipal Staff. Human Resources, 6: 47-49.

Chen, T.L., 2014. Exploring e-Learning Effectiveness Perceptions of Local Government Staff Based on the Diffusion of Innovations Model. Administration & Society, 46(4) 450-466.

Danilina, H. and Z. Mingaleva, 2013. Improving of Innovation Potential Efficiency of Industrial Enterprises. Middle East Journal of Scientific Research, 13 (SPLISSUE): 191-194.

Eroyan, A.E., N.V. Andreeva, E.A. Gorlova, T.L. Oganesyan and L.L., Oganesyan, 2015. Ways to Increase Effectiveness of Managerial Staff Training in the Sphere of Public and Municipal Administration. Mediterranean Journal of Social Sciences, 6 (36): 321-328.

Federal Law "On Municipal Service in the Russian Federation" No. 25-FZ dated March 2, 2007. Date Views 23.11.2016 www.consultant.ru/document.

Federal Law "On General Principles of Local Self-Government in the Russian Federation" No.131-FZ dated 06.10.2003. Date Views 23.11.2016 www.consultant.ru/document.

Federal Portal Management Personnel of the Russian Federation, 2016. Date Views 23.11.2016 gossluzhba.gov.ru/analytics.

Galup, S., C. Saunders, R.E. Nelson and R. Cerveny, 1997. The Use of Temporary Staff and Managers in a Local Government Environment. Communication Research, 24(6): 698-730.

Gawthrop, L, (1969) Bureaucratic Behavior in the Executive Branch. New York: The Free Press, pp: 276.

Greenwood, E, 1962. Attributes of a Profession. New York: Basic Books, pp: 206-18.

In Germany Found a Way to Make Non-boring, 2012. Municipal Elections in Russia, 6(32): 94-99.

Kolesova, E.L, 2014. Personnel Potential of Local Government: State and Development Trends. Bulletin Pugs, 6: 16-21.

Laurinmyaki, Yu,T. Linkola and K. Pryatta, 1996. Local and regional government in Finland. Union of local self-government institutions of Finland [Mestnoe i regional'noe upravlenie v Finlyandii. Soyuz mestnykh organov samoupravleniya Finlyandii]. Moscow, Knowledge [Znanie], pp: 304.

Local government (1995). Moscow: The National Association of Local Authorities and the Danish Union of Russian Cities, pp: 269.

Malik, E.N. and A.V. Melnikov (2015). Specificity of Human Resources Management of the Municipality in Terms of Local Government Reform. Management Consulting, 10(82): 8-14.

Marcinkevičiute, L & Žukovskis (2014) Staff Motivation in Municipal Administration: Example of R. Hackman's and G. Oldham's Work Characteristics Model. Research for Rural Development, (2)178-183.

Mingaleva, Z. and H.Danilina, 2014. Significance of Technological Innovations for an Increase of Competitiveness of Industrial Companies. Life Science Journal, 11(8): 211-215.

Ogneva, V.V, (2014) Integrative Opportunities for International Cooperation of the CIS Countries in the Sphere of Civil Service Training. Management Consulting, 2: 7-14.

On Additional Professional Education of Public Civil Servants of the Russian Federation. Presidential Degree No. 1474 dated 28.12.2006, as amended on 06/12/2007.

Patrucco, A.S, D. Luzzini & S. Ronchi, 2016. Evaluating the Effectiveness of Public Procurement Performance Management Systems in Local Governments. Local Government Studies, 42(5): 739-761.

Rosenberg, D, 1985. The Assumptive Worlds of Managers of Personal Social Services in UK Local Government, Local Government Studies, 11(4): 63-90.

Rosstat, (2015). Date Views 23.11.2016 www.gks.ru/wps/wcm/connect/rosstat_main/rosstat/ru/statistics/publications/catalog/doc_1135087342078.

Staff Reserve-Professional Team. Project of Edinay Russia, (2016) Date Views 23.11.2016 er.ru/projects/kadrovyij-rezerv-professionalnaya-komanda-stranyi.

Staffing of Local Government. All-Russian Council of Local Self-Government (VSMK), 2016. Date Views 23.11.2016 vsmsinfo.ru/proekty-i-programmy/kadrovoe-obespechenie-mestnogo-samoupravleniya.

The Federal Program 'Reforming and Developing Public Service System in the Russian Federation for the Years of 2009-2013. Presidential Degree No. 261 dated10.03.2009rg.ru/2009/03/13/programma-dok.html.

Uskova, T.V. and S.E. Belous, 2006. Issues of Staffing of Local Governments in the Primorsky Territory. Vologdinskie Reading, 58: 38-41.

Vulfovich, R.M. and V. Lobko, 2010. Functional and Territorial Aspects of the Problem of Development of Local Self-government. Vlast, 1: 25-29.

Weber, M (1947) Theory of Social and Economic Organization, New York, Oxford University Press, pp: 436.

REGIONAL CONSTRUCTION FINANCIAL GROUPS AS A KEY ELEMENT OF INVESTMENT INFRASTRUCTURE OF THE REGION'S ECONOMY

Sergey S. Dontsov, S. Toraighyrov Pavlodar State University
Rysty B. Sartova, S. Toraighyrov Pavlodar State University
Myrzabek Zhanat, S. Toraighyrov Pavlodar State University
Nadezhda V. Koftanyuk, S. Toraighyrov Pavlodar State University
Zulfiya A. Arynova, S. Toraighyrov Pavlodar State University
Akmaral S. Kadyrov, A S. Toraighyrov Pavlodar State University

ABSTRACT

The article deals with the topical issue of reconstruction and development of investment infrastructure of the region's economy through the formation of regional construction financial groups (CFG), as well as the development of a methodology for effective structural reforms to restore the investment and construction complex in the post-Soviet space. The authors analyze the main problems of Kazakhstan construction industry, resulting from irrational market reforms, and define the concept of "construction financial group", as well as the main advantages of corporate business in modern construction. The article also presents advanced national and foreign experience in effective structural transformations in the construction industry and provides substantiation for integrated approach when solving set tasks taking into account the interests of different parties involved in investment and construction activity. The authors note the importance of adequate decision-making at the regional level that is crucial in formation of all the conditions for rational resource provision, as well as the successful production and sale of construction products and future maintenance service taking into account all industry-specific features. It is argued that a range of fairly large construction financial groups specializing in various kinds of industrial and civil construction can serve as a structure-forming basis of regional investment and construction complexes, collectively forming an integrated national investment and construction association.

Keywords: Investment and construction complex, small and medium-sized enterprises, corporate business, holding companies, industrial financial groups, construction financial groups, investment infrastructure, regional resources, business diversification, synergetic effect.

INTRODUCTION

A serious drawback of the modern construction industry and the whole economy in Kazakhstan is that the hard pressure of administrative management and total planning of all and everything was changed during the creation and development of market economy into the other extremity – evident failure and inefficiency of government regulation and state involvement in the management of investment and construction complex.

From a technological viewpoint, the construction complex does exist under any form of economy management or regulation. However, in the context of economy management in changing general economic conditions of the construction industry as a branch of material production, the concept of construction complex has virtually disappeared. Primarily, this is due to the elimination of a subordination vertical line of "Trust – Association – General Directorate – Ministry". The dismantling of this system, unbundling and privatization of the structural elements of construction associations have led to a vacuum in the middle management level.

The question arises whether the concept of "construction complex" is still relevant in a market economy, and if yes, what should be its essential economic and organizational content?

The predominant privatization form of large construction enterprises in the transition to a new economic system was the corporatization, i.e. conversion into joint-stock company. However, many state-owned enterprises when becoming joint-stock companies just changed the sign-plates, continuing to operate in the mode of cost-based economy that inevitably contributed to the decline in production. Another typical consequence of massive privatization in construction sector was the creation of a large number of uncompetitive small enterprises which even today predominate in the market.

Promotion of entrepreneurship in construction sector should ensure the comprehensiveness of the construction industry, which, as organic whole, would successfully operate in a market economy. This goal should not be overlooked when carrying out sectoral restructuring, namely, improving the production (modernizing fixed and current assets), finance (changing the capital structure), and management (improving the structure and elimination of duplicating functions) in construction sector. From this it follows that, firstly, we should deeply comprehend the legal consequences of privatization, and secondly, we need to take a new look at the legal nature of new-type construction associations.

Currently, national construction companies lose out to foreign competitors in the tenders not only on the price factor but also on performance reliability of contracting projects in terms of work quality and deadlines.

In this regard we should pay particular attention to the solution of two main problems:

1. Overcoming the negative consequences of privatization which have led to the destruction of the country’s construction complex that resulted in obvious non-availability of local contractors able to effectively implement major investment projects.
2. Mastering of up-to-date methodology and practice in project management, when implementing major contracting projects.

For the successful solution of this problem, first of all, attention should be paid to the development of efficiently operating national corporate construction structures, allowing increasing the capital concentration level in the industry. The economic potential of large corporations is significantly higher than that of small enterprises, and thus can provide a higher economic effect.

Methodology and Practice of Corporate Business Advantages Evaluation in Contemporary Construction Sector

The development of corporate sector of the investment and construction complex can substantially raise the efficiency of the whole construction industry. Comprehensive management of construction should be considered in terms of the final product, since it is the final output that integrates the construction organizations and productions, as well as organizations of other industries, into agglomerate that has complex-forming ties (Asaul and Batrak 2001a).

The prerequisites for establishing effective regional corporate structures in the investment and construction complex can be stated in the following main provisions:

1. Fixing the cost of objects, which is more likely when integrating into the corporate structure suppliers of building materials, products, and structures?
2. Providing high degree of attachment to a specific regional market to enhance competitive advantages of the construction organization in the region, where it has material and technical resources and other production and technological infrastructure elements.
3. Creating favorable conditions for home buyers, who are interested not only in the quality of the purchased apartment but also in after-sales service.

Drawing on best practices in international corporate management considered in many foreign and some latest domestic scientific works, we can distinguish the following approaches to evaluating the effectiveness of corporate integration:

1. The approach associated with the financial management theory.
2. The approach associated with ensuring competitive advantages.
3. The approach associated with the transaction costs theory (the possibility of savings through long-term contracts, regulating joint activity).
4. The approach aimed at fostering mutually beneficial long-term business relations (Asaul and Batrak 2001b).

Serious attention should be paid to research on corporate business benefits in the construction industry of most developed countries. Thus, we have studied the relevant changes in the UK construction industry aimed at developing cooperation and coordination of branch enterprises in the framework of the implementation of a complete construction cycle. In consequence of conducted survey among the construction industry representatives, it was found that in general there were significant changes towards increased cooperation that provides beneficial effect. On the other hand, it was revealed that these changes were unbalanced. In addition to the survey, interviews were held with a number of experts in the industry that helped exploring the specific features of the cooperation between construction companies and evaluating its practical significance for successful economic development (Meng 2013).

It should be noted that the British construction industry is undergoing serious changes. The combination of reform initiatives emanating from the state, changes in the public procurement strategy and increased international competition have led to the need for institutional reform in British construction sector, aimed at developing partnerships and optimizing private financing of enterprises in the industry. At that, the reforms of the contractual relationship are noted as the most important development trends, in particular, the proliferation of partnerships as well as shift

of public procurement towards concession contracts in the form of "private finance initiative", (Winch 2000).

The advantages of corporate business in modern construction are confirmed also by best practices of multinational construction corporations of Singapore. As a result of conducted research and evaluations, Cuervo and Pheng have identified the most important factors contributing to transnational construction corporations in obtaining their benefits from the internationalization. This, above all, is high economic efficiency and competitiveness, quality of work and customer service, maximum cost optimization and reliable contract enforcement, protection of corporate reputation, as well as enhancement of corporate brand prestige and credibility (Cuervo and Pheng 2005).

In addition to the above, it should be noted that an analysis of the advantages of ownership, location and internationalization of Chinese multinational construction corporations (MNCs) is of particular interest for the development of industry-specific corporate business. This analysis is based on the theory of rough sets in the framework of Dunning's Eclectic Paradigm. This allows overcoming the constraints associated with limited sample size in the study of MNCs that is aimed at studying regularities and causality of the identified effectiveness factors. Unlike traditional statistical methods, the methodology for the analysis of rough sets allows setting the procedure for determining these factors, as well as their level of influence when analyzing the indicators of construction multinational corporations (Pheng and Hongbin 2006).

It is believed that one of the major motives for corporate mergers is the desire to achieve a synergistic effect.

The most important goals when implementing synergies, arising from the corporate merger, include the following:

1. Operational Savings i.e. increase in efficiency by eliminating duplicate functions in each of the merging companies, the centralization of marketing, logistics, and financial flow management.
2. Economies of scale**,** i.e. reduction in average costs per unit with increasing output due to distribution of fixed costs on a larger total of output.
3. Reduction of costs owing to vertical integration through the implementation of the commitments, improved management and coordination along the entire process chain, avoiding the market value of resources in integrated productions, improving quality control, etc.
4. Combining complementary resources.
5. Optimization of taxation (tax shields) through the use of transfer pricing, "carry-forward" of losses of one company to reduce the taxable profit of another company (i.e. reducing future tax payments);
6. Improving the managerial efficiency through redistribution of property from poor management in favor of more efficient management.
7. Business diversification, allowing stabilization of the company income through the activities in different market segments with different business environments.

Recently, fundamentally new types of investment and construction companies and enterprises have emerged in the post-Soviet space. Operating and developing successfully, they are able to meet the market needs in construction products. Holding companies are a kind of such groups.

From systemic perspective, a holding company in construction sector can be represented as a system of interconnected structural entities focused to the main goal – the creation of a finished construction object with a use value (Rakhman and Terentiev 2002).

The industrial financial groups (IFGs), widespread globally and domestically due to the development of concentration and cooperation processes in various sectors of the economy, are a kind of a holding company. These corporate structures typically include not only industrial enterprises but also financial institutions. The capabilities of IFGs are quite high, since they are able to join manufacturing, trade, banking, and other forms of capital. Thus, the industrial financial group can be interpreted as a combination of supervision and proprietary rights, technologies and assets, providing potential future revenues with a certain probability. These Structures should become critical means for the successful implementation of the investment policy in construction (Ivanov 2001).

In the leading industrial nations, the powerful industrial companies are organically intertwined with financial institutions such as banks, insurance and investment companies. Compared to small and medium-sized businesses, these integral formations have much greater opportunities for carrying out research and development works, manufacturing high-tech products, and conducting large-scale projects due to the concentration of scientific potential as well as production and financial resources. The practice of Western European countries, USA, Japan, South Korea, etc. definitely convinces us that the national capital becomes competitive at the international level only when it is structured in large part into financial and industrial corporations supported by the state.

The vast experience in the establishment and development of industrial financial groups as a tool for activation of investment and construction activities in the post-Soviet space has been gained in the Russian Federation (Shvets and Shvets 2001). The recent history of the IFGs activities in Russia dates back to the adoption in 1993 of the Presidential Decree No.2096 "On Industrial Financial Groups" and the entry into force of the relevant federal law, providing regulatory and legal framework for the establishment and development of large corporate-type economic structures.

The analysis of the IFGs activities in the post-Soviet space shows that in the conditions of economic crisis major corporate entities demonstrate a greater resistance against exogenous factors, provide a more favorable investment climate compared to separately operating enterprises, and enable consolidation of current assets at their deficit.

Under conditions of almost full decentralization and disintegration, characteristic for the regions with transitional economies, IFG is almost the only mechanism, which allows focusing on possible "points of growth" of the industry, ensuring the restructuring of the economy and its manageability at the level of middle management.

It is IFG that is able to act as a reliable support of the state when fostering the economy. The IFGs can contribute to progressive structural adjustment, and improve the competitiveness of national production.

In the corporate business, the main objective is the concentration of financial resources, optimization of the financial flow creation and management methods. At the present time, industrial and financial businesses in Kazakhstan are experiencing acute need for each other. The financial market has available money, while lacks quality financial instruments (investment targets). At the same time, industrialists feel the need for investment resources, though between them there is no sufficient trust, consistency in actions, and consequently the risks of joint activities are quite high. Therefore, there is an urgent need for structures ensuring the balance between interests of all business participants.

Industrial financial groups are the promising structures ensuring the creation of a single financial scheme of corporate business in Kazakhstan and an effective mechanism for capital redistribution.

Development priorities and state support for IFG should be determined by the priorities of national economic development for the foreseeable future.

Crucial measure for the successful solution to problems in investment and construction area is the establishment of regional IFGs focusing on the implementation of the mortgage, ensuring the closure of the investment cycle and integrating into a single complex the entities of the construction industry, banking and insurance sectors on a common reporting and taxation basis.

In view of the foregoing, it becomes obvious that for the successful implementation of state investment policy and strategy for rational restructuring of the economy, special attention should be paid to the organization and development of regional construction financial groups (CFG).

The Results of the Study on Regional Construction Financial Groups as System-Forming Link of Investment and Construction Complex

Regional CFGs should be considered as a variation of the IFG with respect to the construction industry. These are economically and organizationally independent structures, created with the purpose of accumulating financial resources for the execution of major investment and construction projects and their implementation in the territory of specific regions of the country.

The formation of regional CFGs will allow solving most effectively in the short term the fundamental problem of the regional economy development the accumulation of investments for implementation of large-scale investment projects in the industrial and social spheres.

It is obvious that contemporary regional investment and construction complexes cannot consist of only CFGs, because the small business sector has firmly carved out a niche in the state economy, including that in construction sector. However, the combination of large enough CFGs, specializing in various kinds of industrial and civil construction, can and should become the structure-forming basis of regional investment and construction complexes, collectively forming a unified national investment and construction association.

Implementation within the territory of the regions of large industrial and infrastructure projects, requiring substantial volume of funding (such as the creation or extension of large transport nodes, the development of mineral deposits, etc.), requires the establishment of regional CFGs focused mainly on industrial construction. At that, an active role should belong to economic agents interested in profiting from the exploitation of future production capacities. Local administrations may act as initiators of projects development and creation of the regional CFGs necessary for projects implementation, as well as act in capacity of their co-founders, investing regional ownership resources in the equity capital. The feasibility of formation of such groups can be identified at the stage of strategic development of long-term economic development of the regions, especially since this task is associated with the solution of the most important social task - creation of additional jobs for the working population.

The feasibility of establishing regional CFGs, aimed at solving problems related to the development of appropriate life support systems of the population, and the requirements of their organizational forms can be identified in the course of medium-term policy-making with regard to the social and economic development of regions or municipalities.

Here, the initiative should belong almost entirely to the regional authorities, concentrating in their hands the financial resources of a profitable part of local budgets, whose expenditure is designed for solving social problems. Besides, they are managers of regional resources, which can be paid into the created CFGs as share capital, providing both profit-making and proper monitoring over their activities.

Communication between the participants of the regional investment and construction complex should be based on production relations in the framework of creating the ultimate construction products, while the regulatory control of local administration can be carried out through:

1. A set of national and regional legal acts regulating economic behavior of market entities.
2. Arrange of measures in the framework of regional production and social policy with regard to both the investment and construction complex in general, and each specific CFG.
3. Proactive elaboration on a competitive basis of major projects in the field of industrial, transport, tourist and other regional complexes development, as well as the development of the regional life support systems and social programs.
4. Involvement as co-founders in the establishment of regional CFGs, aimed at solving problems of industrial and social development of the region by investing into the authorized capital of such groups not so much monetary assets, but regional resources, which, according to applicable legislation, can be used by the local authorities.
5. Financing of construction projects of regional production and social development through regional (municipal) budget.
6. Providing guarantees for targeted loans to regional CFGs implementing investment and construction projects, aimed at solving the priority tasks of the regional development.
7. Supporting accumulation of CFGs' financial resources through the issuance of regional special-purpose loans, securities, etc.

Here we should emphasize that all these measures should be purely economic, though in no way administrative in nature, and carried out in the framework of effective public-private partnerships.

Thus, the regional CFGs are able to act as a reliable pillar of the local administrations in the development of certain elements of the investment and construction complex of the country, its progressive structural adjustment and enhancement of competitiveness of the national construction industry in general.

There are various options for the establishment of CFGs (Gorbunov, et. al. 1999), though following are the basic ones:

1. Private or joint stock Company, engaged in construction business, acts as an initiator of CFG establishment, creating its own financial structure to accumulate financial resources and attract other necessary members of the production activities; the involvement of a bank or group of banks as the financial component of the group may be a modification of this option.
2. Regional CFG is established by a bank through consolidation of building contractors and enterprises involved in construction materials industry, which are under its financial or credit service. Purchase of a significant or even control block of shares of companies involved in entrepreneurship in the sphere of construction and being potential members of the group is also possible;
3. Regional CFG is established on the initiative of the local administration to solve a specific social or economic problems.

Certainly, in addition to the above mentioned basic establishment options of the CFG, other modified schemes based on more extended structure of participants (especially in the financial infrastructure area) are possible. Though, in any case, CFG members should ensure availability of full cycle of creation and implementation of the final construction products. Different approaches to the formation of CFGs should be unflaggingly based on a balance of all group member interests regardless of their category or level in the hierarchy of the established corporate structure.

Features of regional investment and construction complexes formation are largely dependent on the capital concentration level in the regions, as well as natural, economic and geographic factors (availability of mineral resources, geopolitical situation, level of economic development of the region, etc.), the engineering and social infrastructures development level, and many other factors. In this regard, local administrations should be interested in creating favorable conditions for preferential taxation of CFGs registered in the region in order to attract new capital.

Regional CFGs, operating closely with municipal authorities and with their active support, can undertake the solution of the whole range of problems related to organization of construction and subsequent maintenance service of housing as well as other community infrastructure and facilities. In this case, the regional CFGs will have to step into the role of developers performing the following functions:

1. Selecting cost-effective project.
2. Creating or conversing real estate objects (redevelopment of undeveloped land, reconstruction of existing buildings, etc.).
3. Obtaining all necessary statutory documentation and approvals for the project implementation.
4. Searching for investors and defining conditions to attract investment and borrowed funds.
5. Developing the cash cycle and return mechanisms.
6. Qualifying contractors and outsourcing, monitoring works performance.
7. Selling and subsequent servicing the constructed objects.

Regional CFG should be responsible to investors for the effective management of their funds, to financial institutions for timely repayment of loans, to the authorized state and regional agencies for compliance with the terms of the project, to the contractors for the timely financing of works, and to consumers for product quality. Ultimately, it should be the coordinator of the entire investment and construction cycle within the framework of the implemented project.

Moreover, the structure of regional CFGs, which includes as a rule powerful financial institutions and particularly banks, allows not being limited to simple accumulation of financial resources, but increasing initially raised funds through activities in the financial markets that implies exercise of the functions of trust management of funds. This opens to the regional CFGs broad opportunities for projects funding, especially large ones, which require long-term implementation (for example, the mass construction of housing in urban areas).

Thus, it is obvious that the regional CFGs can become central system-forming institutions in the course of adaptation of the regional investment and construction complexes to the socially oriented market economy conditions.

It can be argued that in the current context the phenomenon of investment and construction complex acquires specific subject-matter and a full-fledged economic interpretation only under consideration at the regional level. Thus, today it is expedient to define the concept of investment

and construction complex as association of local regional complexes. At that, each regional investment and construction complex should be characterized by a certain uniqueness of its formation, functioning, and development.

The formation and application issues of the system-based approach in the economic space management are successfully developed and implemented on the basis of multi-year research of scientists of a number of Russian institutes of economics and economic studies at regional branches of the Russian Academy of Sciences (RAS).

Member of the Russian Academy of Sciences Alexander Tatarkin, Director of the Institute of Economics, Ural Branch of RAS, (Tatarkin 2012) notes that rational systemic transformation of the current economic space is based on the provisions of the theory of polycentricity, indicating a need for transformation of the centralized economic space into polycentric network space. Therefore, the essence of the new model of spatial development and management of the post-Soviet market economy consists in creating a framework of regional and territorial centers of economic growth. At that, there is a need for self-development and independent governance of regional and territorial socio-economic systems. It should be emphasized that the importance of developing new forms of spatial organization of the economy by creating business areas, the transition to program-and-project based approach in the management of spatial development, active use of market institutions of spatial development, and especially clusters as the most common institutions.

All this, according to the authors of present article, also stipulates the necessity for development of regional CFGs as crucial elements of the investment infrastructure of regional economies, whose success ultimately determines the successful development of the national economy in general.

Prospects of regional associations of small construction enterprises as an effective form of their activity in the market environment

Based on the entrepreneurial essence in construction sector, creating the ultimate construction products (real estate), its sale and subsequent maintenance service have a distinct regional nature. As a rule, regulation and development issues of the investment and construction activity processes are resolved at the level of regions, taking into account their characteristics and needs, as well as national interests. This is confirmed by global practice (Kharms and Bunis 1996; Vorontsova and Gubanova 2012; Bannova 2012; Kulikova 2011).

It was noted earlier that the economic potential of large corporations is significantly higher than that of small enterprises and can provide higher economic benefits that is also evidenced by a number of contemporary studies (Ivanenko and Petrov 2012a; Ivanenko and Petrov 2012b; Popkova and Meshkov 2012).

However, one should not underestimate the role and importance of small business in construction sector. Practices of many countries (Germany, Finland, Poland, Czech Republic, etc.) show that small construction companies perform from 40 to 60% of the total scope of installation and construction works, and a considerable proportion of these works is executed on the terms of subcontracts with major investment and construction corporations, holding companies, etc. In other words, small construction enterprises are grouped around the construction corporations and holdings, performing works that are more appropriate and cost-effective for small businesses in construction. At that, it is desirable to take into account the

accumulated successful practices of dynamic process modeling in production diversification (Barkalov and Bakunets 2003).

The development of small business contributes to the extension of free competition and serves a kind of indicator in both a particular industry and a state economy in general. Currently, 83.7% of the organizations in the construction industry of Kazakhstan are small enterprises (numbering up to 50 people); this indicates a high level of industry competition.

However, the lack of own available funds or ability to take up loan, bank and insurance guarantees, as well as limited capacity of the small construction enterprises lead to the fact that these enterprises, not being involved in a corporate structure, virtually are unable to win a tender for the construction of any significant facilities.

The same conclusion can be drawn when analyzing similar problems of small construction firms abroad. Thus, in consequence of the conducted survey, about 70% of the Egyptian companies stated that they do not have the necessary access to existing funding sources, while 85% of companies confirmed that the lack of financial resources negatively affects their competitiveness in the fight for promising projects. It is also noted that the increase in accessibility of financing sources for small construction enterprises would contribute to a more successful development of not only the construction industry but the national economy in general (Hassanein and Adly 2008).

Most building contractors in Hong Kong are also typically small private firms. Bank loans are the main, if not the only, source of external financing for them. However, construction loans represent only a small part of loan portfolio of Hong Kong bankers. Therefore, banks often neglect small construction firms as a low-priority and high-risk category of borrowers, which negatively affects their competitiveness and opportunities for innovative development. Trying to overcome such kind of difficulties, construction companies use the interim payment mechanism that somewhat reduces the need for external borrowing, though does not solve industry problem in general (Chiang and Cheng 2010).

The analysis of statistical data shows that the production capacities of small and medium-sized construction structures are used at just 30-57%, while only 8% of them have the necessary working capital and real possibility for competitive struggle in the real estate market (Construction in Russia, 2013).

In this regard it is expedient to consider the possibility of merging small companies into large consortia that is fairly widespread abroad. Regional engineering consortium created in the construction industry could be entrusted with the following functions:

1. Conducting investment projects marketing.
2. Creating temporary consortia of banking, insurance, project, and contracting organizations able to participate in tenders for major projects.
3. Preparing tender documentation for participation in the investment and contracting biddings on selected projects, as well as preparing tender documentation, business plans, valuation of real estate, consulting services, etc. on outside orders.
4. Awarding contracts with the customer (investor) and consortium members in case of winning in tenders.
5. Implementing functions of the coordinator (general contractor) in the contract execution.

In consequence of discussion of prospects of regional associations of small construction enterprises in the market conditions, many contemporary researchers proposed to create

construction clusters, which are considered as an effective form of interaction between participants of construction complex, including small business entities. Some researchers studied the feasibility of the cluster approach in the formation of effective cross-sectoral and territorial interaction of participants of investment and construction activities in the region (Akhmetova 2014; Smitskikh and Terent'eva 2014; Kotlyarova and Devyatykh 2013; Sqvirya 2013).

In general, it should be noted that the very fact of integrating various structures different in forms of ownership, scale and nature into a single group or the network evidences that at the present stage of development of regional investment and construction complexes, an intense internal restructuring of the construction industry is developing towards the creation of new organizational forms relevant to the changing market economy conditions.

Thus, the period of the collapse of construction firms is replaced by a period of consolidation of construction companies, i.e. formation of large construction organizational structures aimed at concentrating the resources needed for the implementation of major investment and construction projects, successful participation in tenders, entering new markets, etc. Besides, the consolidation ensures greater sustainability of entities in the construction industry, including small and medium-sized enterprises. This produces diversification of production activities, the combination of various market segments, as well as leads to synergistic effect inherent in effective systemic formations.

CONCLUSION

In the context of modern market relations, in the Republic of Kazakhstan, just as in the most regions of the post-Soviet space, there is a definite lack and inefficiency of state regulation and involvement in the management of national investment and construction complex. And indeed, in consequence of irrational market transformations, this concept itself has become a kind of abstraction since the corporatization of the large construction companies has not resulted in effective corporate structures. At the same time, currently prevailing isolated small and medium-sized construction enterprises are not able to ensure the implementation of major projects, which lowers the competitiveness of the domestic construction industry.

Promotion of entrepreneurship in construction sector should ensure the comprehensiveness of the construction industry, which, as organic whole, would successfully operate in a market economy. For a rational solution to this problem, special attention should be paid, first of all, to the development of well-functioning domestic corporate construction structures that would allow increasing capital concentration level in the industry.

Based on the entrepreneurial essence of construction sector, creating the ultimate construction products (real estate), its sale and subsequent maintenance service have a distinct regional nature. Therefore, it is expedient to resolve the issues of regulation and development of the investment and construction activity processes at the level of regions, taking into account their characteristics and needs, as well as national interests.

In order to successfully meet the challenges in investment and construction area, the establishment of regional industrial financial groups (IFGs) should be considered as the crucial measure to provide complete investment cycle and integration of small, medium-sized and large construction entities into a single complex, operating along with the banking and insurance sectors on a common reporting and taxation basis.

Regional construction financial groups (CFGs) should be considered as a variety of IFG in relation to the construction industry. These are economically and organizationally independent structures, created to accumulate financial resources for the execution of large investment and construction projects and implement them in the territory of specific regions. A set of fairly large CFGs, specializing in various types of industrial and civil construction, can and should become a structure-forming basis of the regional investment and construction complexes, collectively forming a unified national investment and construction association.

The present article contains findings of the research carried out in the framework of the state budget research on a topic: "The rational organization of production and management in the modern construction", and published in the fundamental scientific monograph (Dontsov 2004), which has received a positive reviews from Chung Ngia Chan – Doctor of Economics, Professor, Member of the International Informatization Academy, Erlan M. Aryn – Doctor of Economics, Professor, Rector of S.Toraighyrov Pavlodar State University, and Yerzhan B. Zhatkanbaev – Doctor of Economics, Professor of Al-Farabi Kazakh National University. The monograph was edited by Kenes K. Kazhymurat – Doctor of Economics, Professor, Vice-President of the Institute for Development of Kazakhstan.

The authors hope that their research and recommendations on creation and development of the regional construction financial groups as a crucial element of the investment infrastructure of the regional economy will allow optimizing the structure of the investment and construction complex in Kazakhstan and contribute to a more dynamic and effective development of the national economy in general.

Future research prospects in this area can be associated with the implementation of the developed proposals for improving the investment infrastructure of regional economies and subsequent structural optimization of the Kazakhstan investment and construction complex. This will allow making necessary clarification and increasing the practical significance of research outcomes, including in particular the following:

1. Improving the efficiency of state regulation and participation in the management of the national investment and construction complex.
2. Specifying the terms of interaction between corporate businesses and small and medium-sized business entities in the structure of CFG.
3. Detailing functions of the construction financial groups, while ensuring the comprehensive development of modern construction industry.
4. Identifying further development paths of CFGs, forming a single national investment and construction complex when operating together, considering specifics of construction products, the requirements of major consumers, as well as national interests.

REFERENCES

Akhmetova, G.Z. 2014. Klastery kak forma innovatizacii struktur kapitala lokal'nyh ehkonomicheskih sistem [Clusters as a form of innovatization of the capital structures of local economic systems] [Text]. *Problems of Modern Economy*, 4(52), 237-241.

Asaul, A.N, & Batrak, A.V. (2001) *Korporativnye struktury v regional'nom investicionno-stroitel'nom komplekse* [Corporate structures in regional investment and construction complex] [Text]. Moscow: ASV Publishing, Saint-Petersburg: Saint-Petersburg State University of Architecture and Construction, Pp.168.

Asaul, A.N, and Batrak, A.V. (2001) B. Kriterii ehffektivnosti deyatel'nosti korporativnoj struktury [Efficiency criteria of corporate structure operation] [Text]. *Construction Economics*, 2(505), 18-32.

Barkalov, S.A, Bakunets, O.N. (2003). Modelirovanie dinamicheskogo processa diversifikacii proizvodstva na osnove vvedeniya pokazatelya soglasovaniya periodov [Simulation of dynamic process in production diversification through the introduction of periods reconciliation index] [Text]. *Construction Economics*, 5(532), 22-28.

Bannova, S.E. 2012. Obosnovanie neobhodimosti sozdaniya stroitel'nyh konsorciumov v Samarskom regione [Substantiation of necessity to create construction consortia in the Samara Region] [Text]. *The Basics of Economics, Management and Law*, 1(1), 58-62.

Chiang, Y.H, and Cheng, E.W.L (2010). Construction loans and industry development: the case of Hong Kong. *Construction Management and Economics*, 28(9), 959-969.

Cuervo, J.C, Pheng, L.S. (2005). Significance of internalization factors for Singapore transnational construction corporations. *Construction Management and Economics*, 23(2), 147-162.

Dontsov, S.S (2004). *Racional'naya organizaciya proizvodstva i menedzhment v sovremennom stroitel'stve (na primere Respubliki Kazahstan)* [Rational organization of production and management in modern construction (evidence from the Republic of Kazakhstan)] [Text]. In K.K., Kajimurat (Eds.), Pavlodar: S. Toraigyrov Pavlodar State University, Pp. 692.

Gorbunov, A.A, Ivanov, S.N, and Asaul, A.N (1999). *Formirovanie regional'nyh stroitel'nyh kompleksov v tranzitnoj ehkonomike* [Forming a regional construction complexes in the transit economy] [Text]. St. Petersburg: Nauka, Pp. 156.

Hassanein, A.A.G and Adly, S.W(2008). Issues facing small Egyptian construction firms: the financing barrier. *Journal of Small Business & Entrepreneurship*, 21(3), 363-376.

Ivanov, A.V (2001) Pravovye osnovy predprinimatel'stva v stroitel'stve [Legal bases of entrepreneurship in construction industry] [Text]. *Construction Economics*, 5(508), 2-9.

Ivanenko, L.V, and Petrov, S.M. (2012a). Osnovnye problemy malogo i srednego predprinimatel'stva v stroitel'stve i puti ih resheniya [Basic problems of small and medium-sized entrepreneurship in the construction sector and ways of their solution] [Text]. *The Basics of Economics, Management and Law*, 1(1), 71-76.

Ivanenko, L.V, and Petrov, S.M. (2012b). Koncepciya upravleniya razvitiem malyh i srednih stroitel'nyh predpriyatij v regione [The development management concept of small and medium-sized construction enterprises in the region] [Text]. *The Basics of Economics, Management and Law*, 3(3), 63-66.

Kharms, R., and Bunis, I (1996). *The role of construction sector in economic policy. Long-term prospects and policies in the construction sector*. New York: UN, pp. 210.

Kotlyarova, S.N., Devyatykh, Ya.Yu. (2013). Ispol'zovanie klasternogo podhoda v regulirovanii investicionno-stroitel'noj deyatel'nosti [Use of the cluster approach in the regulation of investment and construction activities] [Text]. *Economy of Region*, 1(33), 178-188.

Kulikova, I.Y. (2011). Vnedrenie sbalansirovannoj sistemy pokazatelej v investicionnyj process predpriyatij regional'nogo investicionno-stroitel'nogo kompleksa [Implementing the balanced scorecard into the investment process at the enterprises of the regional investment and construction complex] [Text]. *Problems of Modern Economy*, 1, 246-249.

Meng, X. (2013). Change in UK construction: moving toward supply chain collaboration. *Journal of Civil Engineering and Management*, 19(3), 422-432.

Pheng, L.S. and Hongbin, J. (2006). Analyzing ownership, location and internalization advantages of Chinese construction MNCs using rough sets analysis. *Construction Management and Economics*, 24(11), 1149-1165.

Popkova, E.G., and Meshkov, E.V. (2012). Problemy i perspektivy malyh predpriyatij stroitel'noj otrasli [Problems and prospects of small enterprises in the construction industry] [Text]. *Bulletin of Volgograd State Technical University*, 16(103), 123-127.

Rakhman, I.A., and Terentiev, A.R. (2002). Integrirovannyj zastrojshchik [Integrated developer] [Text]. Moscow: God Planety, pp. 194.

Shvets, Yu.V., and Shvets, S.M. (2001). Finansovo-promyshlennye gruppy kak instrument aktivizacii investicionno-stroitel'noj deyatel'nosti [Industrial financial groups as the activation tool of investment and construction activity] [Text]. *Construction Economics*, 2 (505), 37-44.

Smitskikh, K.V., and Terent'eva, T.V. (2014) Tendencii i perspektivy ehkonomicheskogo razvitiya stroitel'noj otrasli Dal'nevostochnogo federal'nogo okruga [Trends and prospects of economic development of the construction industry in the Far Eastern Federal District] [Text]. *Bulletin of the Astrakhan State Technical University, Economics Series*, 1, 89-98.

Sqvirya, D.V. (2013).Regional'nye klastery na primere klastera po proizvodstvu stroitel'nyh materialov Vladimirskoj oblasti [Regional clusters, evidence from the construction materials production cluster in the Vladimir Region] [Text]. *Science Studies Internet Journal*, 3(16),26-36.

Stroitel'stvo v Rossii [Construction in Russia] [Text]. (2013). Statistical compilation of Goskomstat of Russia. Moscow: Goskomstat of Russia, pp. 75.

Tatarkin, A.I. (2012). Razvitiye ekonomicheskogo prostranstva regionov Rossii na osnove klasternykh printsipov [Development of economic space of Russian regions based on cluster principles] [Text]. *Economic and Social Changes: Facts, Trends, Forecast*, 3, 28-36.

Vorontsova, T.V., and Gubanova, E.S. (2012). Stroitel'nyj kompleks regiona: sovremennoe sostoyanie i innovacionnyj potencial [Construction complex of the region: current status and innovative potential] [Text]. *Economic and Social Changes: Facts, Trends, Forecast*, 5, 96-106.

Winch, G.M. (2000). Institutional reform in British construction: partnering and private finance. *Building Research & Information*, 28(2), 141-155.

SIXTH TECHNOLOGICAL MODE AND GREEN ECONOMY AS THE BASIS OF STRATEGIC RECLAMATION OF ARCTIC TERRITORIES

Mikhail Nikolayevich Dudin, Russian Presidential Academy Of National Economy And Public Administration (Ranepa)
Vladimir Ivanovich Gayduk, Kuban State Agrarian University
Vladimir Dmitrievich Sekerin, Moscow Polytechnic University
Sergey Valeryevich Bank, Moscow Polytechnic University
Anna Evgenevna Gorokhova, Moscow Polytechnic University

ABSTRACT

This article systemizes and generalizes regularities of forming the global experience and tendencies of reclaiming Arctic territories within changes in the scientific and economic paradigm and transfer to the new (sixth) technological mode. The main goal of this article is to state important moments that predetermine the focus and specificity of the emergence of technologies of the sixth technological mode during industrial and research reclamation of Arctic territories. The scientific novelty of this research is related to the fact that based on the advanced global experience and tendencies in the area of reclaiming and developing Arctic territories, in order to minimize potential power, ecological and economic threats that may cause catastrophic consequences to the whole modern civilization, measures are recommended in relation to developing and pursuing the innovational economic policy for Arctic near shore and other states, namely

1. *Improving the level of the technological infrastructure and efficiency of reclaiming the natural and resource, and industrial and production potential of Arctic on the basis of the advanced technologies of the sixth technological mode,*
2. *Forming a reliable logistic, engineering, civil and industrial infrastructure required to provide stable and ecologically safe development of Arctic and subarctic territories in the current, medium-, and long-term period.*

Key words: Arctic territories, Arctic shelf, subarctic countries, technologies of the sixth mode, stable use of resources, Arctic strategy, institutionalization, "green economy".

INTRODUCTION

It is unmistakable that the modern situation in the Arctic Region attracts attention of many researchers. Arctic in the XX-XXI centuries became much "closer" and more understandable for

people. Over the recent decades reserves of the hydrocarbon raw materials have been explored and rationalized. They are globally important for the whole human society. Arctic trans-continental sea and air routes have been explored long ago, and surfaces of the North Pole and underworld of the Arctic Ocean have been researched [1, 2]. Nevertheless, today's researchers from all over the world go on analyzing and studying in details the issues related to the geographical position and climate of the Arctic Ocean, history of reclaiming cold ice spaces of Arctic, and the need to transfer the reclamation of the Arctic space to the technologies of the sixth mode.

Heterogeneity of interests and levels of development of the Arctic countries, and the fact that the region is one of the richest in natural resources can boost the intensity in the North. The economic component is an important factor in the struggle for Arctic possessions. In 2008 the US Geological Survey published its own conclusions that theoretically Arctic could contain up to 25% of the global oil and gas reserves [3, 4]. Such data was confirmed by the Wood Mackenzie consulting company. It estimates the reserves of oil in Arctic in the amount of 166 bln. Barrels, while the total reserves of oil on the US territory do not exceed 15 bln. barrels [5]. In their turn, European, American and Canadian researchers say about the global warming. According to their data, during the period of 1969-2004, the volume of ice in the east of the Canadian Arctic archipelagos has decreased by 15% [6, 7, 8].

At the modern stage of reclaiming Arctic territories it is possible to observe the tendency to intensifying practical resources use of Arctic not only in the interests that are common for the planet and the humankind, but also in the interests of separate states, as well as commercial national and trans-national corporations [9]. Not only states that are directly located in the sub-polar zone but also such countries as China, Australia, South Korea, Singapore, and India, which are rather remote geographically, display a specific interest in researching and producing natural resources of the Arctic and subarctic territories.

METHODOLOGY

Methods of comparative content-analysis (theoretic analysis), as well as comparative analysis of methodic and empiric publications were used to write this article. The publications are devoted to studying such extremely important aspects as technologies of the sixth technological mode and green economy in reclaiming Arctic, its geo-political position and importance, and a role of reserves of the Arctic hydrocarbon raw materials in providing the global energy safety. Thus, for example, the problems related to reclaiming the natural resources in the Arctic Region are considered by many researchers. However, it is necessary to acknowledge that this theme has not been sufficiently researched in the context of changing technological modes and using technologies of the sixth mode. In particular, the leading Russian researchers offer a new view on this process and implementing global projects by the leading states of the world in the region [10, 11, 12, 13].

REFERENCES REVIEW

In our earlier works [11, 12] we have already specified that the industrial and research reclamation of Arctic is related to both undisputable benefits (that are stipulated by a

considerable volume of hydrocarbons reserves and exclusive climatic conditions; it allows to research regularities of global geo-physical processes) and threats that can become a reason of emergence of various undesirable events. Due to it, now it is necessary to intensively develop and implement technologies of the sixth technological mode in the process of reclaiming Arctic territories. In the general scientific context technological mode must be considered as an aggregate of additive, informational and communicational technologies, robotics and automation of basic processes of the creative human activity.

The sixth technological mode will define the areas and regularities of the modern civilization development since this (2016) year. It will enter the maturity phase in the 2040s. To a definite degree the contours of the sixth technological mode are manifested in the economy of the most developed countries, as well as countries that actively use science-driven solutions to provide the national economic growth (for example, countries of the South-Eastern Asia, China, etc.). This is the nearest future (in the period from 2020 to 2025) that is expected to observe a new qualitative leap in the scientific and technical progress. It will be based on developments, and synthesizing achievements in highly technological areas. There are grounds for such forecasts. For example, in Japan and the USA technologies of the sixth mode are involved in the socio-economic turnover and state management by more than 30-40%. Japan and the USA are going to entirely move to the new mode technology not later than in the third decade of the XIX century. However, Russia, some countries of the Southern America and almost all CIS countries rather considerably lag behind in terms of their indicators on acquiring technologies of the fifth and sixth technological mode. In particular, these regions have acquired technologies of the third and fourth technological modes by 50%, the fifth mode - by not more than 35%, and the sixth mode - by not more than 15% [1, 6].

We have already emphasized that the research and engineering thought, it's becoming and development go collaterally with the social and economic evolving of the modern civilization by forming new reserves and points of growth in the future. If we consider the periodization of technological modes as well as big economic cycles (that were discovered by a Russian economist N.I. Kondratiev), it is possible to see definite regular coincidences. Table 1 shows the periodization of the change of technological modes and changes of long economic waves.

Practical areas of implementing technologies of the sixth mode within the production and industrial, and research reclamation of Arctic can become research and industrial, and research and production clusters, distribution and renewable energy industry, new ecologically safe types of transport, full informational and communicational cover of the whole Extreme North and Arctic Circle by modern means of communication.

As a whole such technological approach to reclaiming the potential of Arctic complies with a new research and practical economic paradigm that defines the modern stage of developing national and global economic relations as cognitive economy (synonyms: digital economy, new industrialization, network economy, techno-economy, etc.). The technological sense of a new research and practical paradigm comes down to the fact that in order to carry out the economic exchange (both in the consuming and entrepreneurial/corporate segment), additive robotics and automation are actively used on the basis of forming a global computer system that provides the integration of geographically connected informational and computing resources.

Table 1
COMPARISON OF PERIODIZATION OF ECONOMIC MODES AND LONG ECONOMIC WAVES (GLAZIEV, 2011)

Period	Long economic wave	Technological mode
Industrial revolution		
From 1770 to 1840	The first economic cycle. Beginning of the increasing phase since 1770 to 1790, the peak of the cycle – approximately in 1820, the end of the cycle – approximately in 1840	The first technological mode. The driver is steam engines, the technology started being widely used approximately in 1790, the phase of quick growth ended approximately in 1830
From 1845 to 1896	The second economic cycle. Beginning of the increasing phase in 1847, the peak of the cycle – approximately in 1880, the end of the cycle – approximately in 1895	The second technological mode. The driver is a steamer, the technology started being widely used approximately in 1850, the phase of quick growth ended approximately in 1880
From 1900 to 1940	The third economic cycle. Beginning of the increasing phase from 1880 to 1900, the peak of the cycle – approximately in 1930, the end of the cycle – approximately in 1945-1950	The third technological mode. The driver is an electric motor, the technology started being widely used approximately in 1900, the phase of quick growth ended approximately in 1930
From 1950 to 1985	The fourth economic cycle. Beginning of the increasing phase since 1940, the peak of the cycle – approximately in 1970, the end of the cycle – approximately in 1985	The fourth technological mode. The driver is a combustion engine, the technology started being widely used approximately in 1950, the phase of quick growth ended approximately in 1970
Informational revolution		
From 1990 to 2018	The fifth economic cycle. Beginning of the increasing phase approximately in 1983-1989, the peak of the cycle – approximately in 2005-2010, the end of the cycle – approximately in 2018	The fifth technological mode. The driver is microelectronic components, the technology started being widely used approximately in 1980-1990, the phase of quick growth ended approximately in 2010
From 2020 to 2060	The sixth economic cycle. Beginning of the increasing phase approximately in 2020-2025, the peak of the cycle – approximately in 2040, the end of the cycle – approximately in 2050	The sixth technological mode. The driver is nano technologies, alternative energy industry. The technology starts being widely used approximately in 2015-2020, the phase of quick growth will end approximately in 2040

The system and structure of new economic relations go far beyond informational and communicational technologies and bear new methods of interrelation of developers, producers, entrepreneurs and markets. It will have a considerable impact on all areas of economy and social activity from retailing, transport, financial services to production, education, health care, mass media, etc.

At the present time projects on creating corporate structures of a new type on the basis of active use of modern informational and computer technologies (industrial Internet consortiums - IIC) have already been implemented. Leading IT companies participated in developing and implementing these projects (General Electric, IBM, Intel, AT&T, and Cisco). 192 members

from 26 countries have already integrated into the "Industry 4.0" industrial Internet consortium [13, 14]. The basic target benchmark of "Industry 4.0" is the creation of a new type of industry that is formed during the current (sixth) technological mode. Herewith, it is assumed to create a system of "smart" plants that will be united into a single chain for quick transformation of operational processes taking into account changes of the cost, as well as the availability of the resourceful provision, current and future market demand for goods, works, and services.

It is planned that the contribution of "Industry 4.0" into the global gross product will have increased up to USD 15tln by 2030. It will provide the growth of the global GDP by 11%. The "Industry 4.0" Internet consortium will integrate about 50bln machines and network devices used in various sectors of industry in construction and transportation. Defining common platforms and languages that the machines of various corporations will use for communication is one of the basic tasks in distributing cyber-physical systems of the Industrial Internet [13, 14].

Along with the informational and communicational technologies that can be used within the production and industrial, and research reclamation of Arctic, educational technologies of a new quality are actively developing. In particular, in the USA with the assistance of such companies as Google and such structures and NASA and DAPRA, a new educational structure Singularity Institute (educational courses on nano-biotechnologies, robotics, mechatronics, foresight design, entrepreneurship in cognitive economy) has been established [13, 14].

At the same time it is necessary to note that over the recent years both Arctic countries and the countries that are geographically remote from Arctic regions have increased their interest in more intensive reclamation of the natural and resourceful base of Arctic. However, they do not pay enough attention to ecological problems and rational use of resources. On the contrary, in Russia these issues are in the focus of attention. In particular, as it is noted in the resolution according to the results of the meeting of the Arctic Expert Club (in October 2015) "Green economy: ecological imperatives of providing economic development of the Russian Arctic", "… today Russia is actively returning to Arctic, renewing the Northern Sea Route, creating the most modern double-purpose infrastructure, and comprehensively solving other urgent tasks…, … the implementation of such large-scale target investment state programs especially on the regional level more likely becomes the business of future" [15]. However, technologies of the sixth mode in Arctic have not been enough distributed. That is why it is necessary to carry out a practical transfer to ecologically safe technologies of acquiring the research, nature and resourceful, and production and industrial potential of Arctic. It will serve the interests of all population because territories of the Arctic Region are characterized by an extremely high ecological sensibility and a long period of renewing the nature and resourceful potential.

It is necessary to understand "green economy" (according to the definition given by the UNO) as the performance of such useful economic activity that would aim at improving the national and global welfare, providing social equality and justness under simultaneous decrease in risks of the environment and nature impoverishment [16]. We also agree that it is necessary to refer "… types and results of the activity that along with the modernization and improvement of the production efficiency contribute to the improvement of the life quality and habitat" to "green economy" [16].

Promising areas of providing stable ecological and economic development of territories of the Arctic Region in the context of forming a new social and economic formation include the following basic tasks [15]:

1. Tasks on providing efficient and rational use of nature by applying ecologically safe and high technologies that form a "green economy" platform,
2. Tasks on implementing and applying modern technologies of energy generation (small generation, distributed generation, and renewable generation),
3. Tasks aiming at optimizing, revealing, and developing useful economic activity that also assumes the planned liquidation of loss-making contaminative productions and neutralizing (full elimination) of the earlier accumulated ecological damage,
4. Tasks on diversifying the economic activity in Arctic and subarctic regions taking into account rationalization and intensification of using the biological diversity of water areas and coastal territories, and
5. Tasks aiming at searching for resources of financing, using of private and state partnership and other tools for active promotion of investment projects of green economy.

It is impossible to solve the above tasks without deep innovational transformation, economic, financial, social and residential sector because this is now when it is necessary to overcome crisis phenomena for the faster transfer from the industrial scheme of reclaiming the North to the model of stable and ecologically responsible development. A number of projects must become a principle basis of transformations. These projects would accelerate solving a set of problems related to reclaiming the coastal territories under active mobilization of the research and technical potential. Along with this, there is an objective need to implement the projects that would aim at

1. Forming research and methodic and practical basics of calculating the admissible anthropogenic and techno genic loadings within the research and production and industrial reclamation of the Arctic potential (regularities and nature use standards),
2. Developing solutions that cover infrastructural aspects (energy conservation, efficient use of resources, and construction of buildings, facilities, important social and engineering facilities).

It is necessary to note that the issues of reclaiming Arctic territories by using technologies of ecological construction are extremely important for further development of both the global and national economic of subarctic countries, as well as for ensuring ecological safety and stable development of the whole Extreme North and Arctic Circle. The implementation and use of eco-technologies in constructing civil and industrial facilities are an integral part of ecologically responsible socio-economic development that is characteristic of a new era of the modern civilization evolving.

At the present time the global energy industry is also characterized by structural changes in the power and energy balance. It also means the reconsideration of the role and importance of separate energy carriers. Herewith, the cost of goods and services production under conditions of high latitudes is considerably higher. It makes up definite difficulties for promoting results of useful economic activity performed in Arctic and subarctic regions [13,17]. In this context the researches of I. Vozniuk and A. Barannik [18], L. Haines [19] and many other researches whose

works have already been mentioned in this work are also urgent. In their joint article the researchers consider Arctic as an important geostrategic region where interests of the leading countries of the world clash. They come to the conclusion that today both the official external policy and unofficial actions of states in the Arctic Region are actively developing.

DISCUSSION AND RESULTS

Numerous researchers specify that one of the most promising areas of reclaiming territories of the Arctic Region in the context of forming "green economy" is the development of "green" energy industry. The territory of the Extreme North and Arctic Circle is characterized by inhomogeneity in providing power resources and developing the power sector infrastructure. Centralized power supply is developed on territories with the relatively high density of population where there are large industrial enterprises and large settlements. At the same time territories beyond zones of industrial reclamation are characterized by a number of small consumers. Power for their needs is produced in the decentralized manner at the facilities of small power.

A considerable part of power is produced on the basis of the fuel and power resources. It is necessary to bring fuel to some regions from far off, and create its considerable inter-seasonal reserves. It, as well as a long heating season stipulate high price of the produced power. The reclamation of local alternative sources of power is considered as a measure that contributes to decreasing the acuteness of these problems. Herewith, the most often non-traditional renewable sources of power (NTRSP) are meant. In many regions of the North the technical potential of NTRSP is considerable. However, in spite of it, plans related to constructing large power stations on their basis remain on paper. It is noticeable that projects in the area of NTRSP are implemented in Northern regions with the furthest territorial remoteness, with a considerable number of de-centralized consumers of power, with the lowest level of transmission networks availability, and under-developed transportation network.

In the Russian Arctic, as well as on other Arctic territories that belong to the countries that have a direct exit to Arctic, important experimental projects on creating tidal power plants, and using generating wind plants have been implemented. The Far-Eastern regions implement solutions on using geothermal plants [11]. The power potential of Northern rivers is rather high. That is why its use in Northern and subarctic regions can be considered as the most promising area of developing alternative and renewable energy industries as small hydro industry [16, 17, 18]. Here the main advantages of small hydro industries for Northern regions may include [17]:

1. Improvement of supplying power to the local population,
2. Decreasing threats for local eco-systems,
3. A lower level of investments for constructing mini-hydro-power stations as compared to large ones,
4. Short terms of construction,
5. Lack of need to construct high-voltage power transmission lines and power transformer plants,
6. High term of stations exploitation (above 4 years) under the inter-repair periods up to 5 years,

7. A low cost of power, and
8. Architectural and construction facilities of small hydro energy industry can become places of interest in organizing ecological tourism, etc.

The basic measures of stimulating the implementation of small hydro energy industry in Arctic and subarctic regions must include the following:

1. Development of internationally unified regulatory and legal acts aiming at stimulating the development of innovational technologies to increase the power efficiency of the economic and social and residential sector of Arctic,
2. Preparing engineering and technical and management personnel on the work with the renewable energy industry under conditions of the Extreme North and Arctic Circle,
3. Financing projects on small hydro energy industry by using many-sided forms of private and state partnership and attracting investments from large national and trans-national corporations, and
4. International implementation of a "green" tariff for alternative power to increase the pay back of projects related to small hydro energy industry in Arctic and subarctic regions where international projects are implemented.

Developing the "green" energy industry in regions of Arctic, it is necessary to take into account that along with the advantages, the alternative energy industry has serious disadvantages (disseminated nature of power of alternative resources, less attractive economic indicators, irregularity of power delivery, need to reserve powers of traditional energy industry, etc.). In the regions with a great number of de-centralized consumers who supply power from small energy industry facilities, advantages of alternative power plants are more vivid. However, on the industrially reclaimed territories with a relatively high density of population, where historically the creation of large power stations (mainly thermal and or hydro-power) is emphasized, disadvantages of alternative energy industry play a considerable role. And here the traditional power energy industry will prevail for long.

As a whole, it is necessary to note that a high level of uniqueness of projects and operations in the area of reclaiming territories of the Arctic Region in the context of forming "green" economy defines special requirements to the quality of such projects management. In order to implement "green" ecological and economic projects in Arctic, it is necessary to improve standards of project management, and to develop a concept of ecologically responsible management when managing projects that may have an effect on the Arctic eco-system. The ecologically responsible project management must be also standardized for the repeated use of resources and equipment that completed their technological cycle. It allows to modernize systems of wastes circuit in industry, agriculture and residential sector of Arctic and subarctic territories.

The implementation of ecological procedures in standards of project management in various areas of the global "green" economy will allow to solve the problem related to managing expectations of the interested projects members, and to discover perspectives of optimizing stability, reliability, safety, economic efficiency, and innovative nature of projects [15]. Consequently, ecologically safe projects on reclaiming territories of the Arctic Region must be

provided by modern informational technologies that do not hedge anthropogenic and techno genic loading on the eco-system of Arctic.

Thus, the reclamation of territories of the Arctic Region must unconditionally be based on technologies of the sixth technological mode and achievements of the "green" economy. Promising areas of the "green" economy of the Arctic Region include comprehensive use of nature, highly ecological technologies of wastes utilization, as well as development of the "green" energy industry. A high level of unique nature of projects in the area of reclaiming territories of the Arctic Region under conditions of forming the "green" economy defines special requirements to the quality of management. They must be provided by the development and use of national standards of "green" project management as well as implementation of informational systems of managing power and resource-saving "green" economy.

CONCLUSIONS

As a whole, today the increase in the interest of a number of countries in Northern territories activates an important task on ensuring the national safety of Arctic countries – to solve the Arctic issue as a component of creating safety surrounding. The most serious claimers to reclaim the resourceful and industrial potential of Arctic remain five states of the "Arctic club" the USA, Canada, Denmark, Norway, and Russia. They actively develop projects on extending economic zones in the region for strategic purposes.

However, not only the above countries that have their territories there display serious interest in the Arctic Region. Subpolar states (Island, Sweden, and Finland) have developed their own Arctic strategies. The European Union pursues its own aims. Asian countries: China, Japan, India, the South Korea, and Singapore show certain economic, technological, military and strategic, and other interests. Thus it is possible to forecast with certainty that in the XXI century Arctic will be in the focus of close attention of not only official subarctic states, but also a number of states whose territories are rather remote from it. Herewith, it is necessary to note that, according to experts, under the modern difficult geo-political conditions, the reclamation of Arctic territories without the active use of technologies of the sixth mode looks difficult and irrational.

Summarizing this article, it is necessary to note that the becoming and development of the engineering thought (both the global and the Russian ones) actively stimulated evolving of the special and economic relations. Engineering played and goes on playing a leading role not only in forming the innovational potential, transforming the development of separate national socio-economic systems and regions (for example, the Arctic Region), but also the whole modern civilization, in general:

1. In the historical context this is the engineering thought that created and formed stimuli for intensive development of socio-economic relations. Due to accumulating the cognitive factor, as a whole global social and economic relations gradually moved to a new stage of development by maintaining and increasing the characteristics and features accumulated before and considered as the potential of evolving.
2. The change of phases of technological and economic development is conjugated. Every new economic cycle has a key technological driver that starts forming in the

period between the decreasing and increasing phases of the economic cycle (long Kondratiev wave). Thus, producing, diffusion and successful acquisition of innovations become a basis of stable development that must be actively and intensively developed for the production and industrial and research reclamation of Arctic and subarctic territories, and Research and engineering thought is developed not only in the military but also in the civil area. The development of the military aspect of the research and engineering thought is not an aggression; it contributes to strengthening the defensive capacity of states. In the second case it allows to create the required science-driven products and technologies meant for social consumption. Taking into account that Arctic is not only a center of scientific and commercial interests but also a center of military and strategic interests, the creation of new highly technological double-purpose products (goods, works and services) is an absolutely reasonable solution. Within this article we have not considered such aspects.

3. Basic areas of harmonizing national legislations of subarctic states in compliance with the standards of the international law,
4. Providing ecological safety within scientific researches and exploration of the resourceful base of Arctic, and
5. Key solutions on developing the infrastructure and civil society on subarctic territories.
6. The authors suppose that these and many other aspects related to the production and industrial, and research reclamation of Arctic will be considered in the next articles.

REFERENCES

Farré, A.B, S.R. Stephenson, L. Che, M. Czub, Y. Dai, D. Demchev and J. Wighting, (2014). Commercial Arctic Shipping Through the Northeast Passage: Routes, Resources, Governance, Technology, and Infrastructure. Polar Geography, 37(4): 298-324.

Arctic Opening: Opportunity and Risk in the High North. Research by Lloyds. Date Views 31.11.2016 www.lloyds.com/~/media/files/news%20and%20insight/360%20risk%20insight/arctic_risk_report_webview.pdf free.

CARA (Circum-Arctic Resource Appraisal): Estimates of Undiscovered Oil and Gas North of the Arctic Circle. U.S. Geological Survey, 2008. Date Views 31.11.2016 energy.usgs.gov/RegionalStudies/Arctic.aspx free.

A New Dawn for Exploration: Future of the Arctic. Research by Wood Mackenzie, 2006. Date Views 31.11.2016 www.woodmacresearch.com/ free.Coal Supply Service Canada. Research by Wood Mackenzie. Date Views 31.11.2016 [www.woodmacresearch.com/cgi-bin/wmprod/portal/energy/highlightsDetail.jsp?oid=1147891&source=rss free.

Climate Change and Arctic Development, 2009. UNESCO Publishing, Pp: 373.

Harsem, Ø, A. Eide and K. Heen, 2011. Factors Influencing Future Oil and Gas Prospects in the Arctic. Energy Policy, 39(12): 8037-8045.

Humrich, C, 2013. Fragmented International Governance of Arctic Offshore Oil: Governance Challenges and Institutional Improvement. Global Environmental Politics, 13(3) 79-99.

Dudin, M.N, V.D. Sekerin, A.E. Gorohova, S.V. Bank and T.P. Danko, 2016. Arctic Zone: Global Strategic Priorities for Integrated Development and Infrastructure Policy. Man in India, 96 (7) 2297-2313.

"Zelionaya ekonomika: ekologicheskie imperativy obespecheniya ekonomicheskogo razvitiya Rossiyskoy Arktiki": rezolutsiya kruglogo stola ["Green Economy: Ecological Imperatives of Providing Economic Development of the Russian Arctic": Resolution of Round Table], 2016. Arctic and North, 22: 160-174.

Dudin, M.N., N.V. Lyasnikov, V.D. Sekerin and A.E. Gorohova, 2014. Historical Aspects of Global Transformation of Engineering Thought in Industry and Agriculture in the Context of Changing the Technological Modes. American-Eurasian Journal of Sustainable Agriculture, 8(6) 17-22.

Dudin, M.N., N.V. Lyasnikov, V.D. Sekerin, A.E. Gorohova and S.V. Bank, 2015. Provision of Global Economic and Energy Security in the Context of the Development of the Arctic Resource Base by Industrialized Countries. International Journal of Economics and Financial Issues, 5(3S) 248-256.

Lipina, S.A. and O.O. Smirnova, 2016. Vyisokotehnologichnyie proekty v arkticheskoy zone - klyuchevye aspekty sovremennogo geopoliticheskogo partniorstva [Highly Technological Projects in the Arctic Xome-Key Aspects of the Modern Geo-political Partnership]. Europeanscience, 3(13) 51-54.

Titov, A.F., Yu.V. Savelev and A.M. Kryishen, 2013. Ekologicheskiy karkas i novaya infrastrukturnaya model razvitiya severnyih territoriy kak osnova formirovaniya strategii perehoda k "zelenoy" ekonomike [Ecological Carcass and New Infrastructural Model of Developing Northern Territories as Basis of Forming Strategy of Transferring to the “Green” Economy]. Date Views 13.11.2016 www.gosbook.ru/system/files/documents/2012/10/25/Titov.pdf.

Rezolyutsiya 6-ogo zasedaniya Arkticheskogo ekspertnogo kluba "Razvitie monogorodov v AZRF: problemyi i vyizovyi sotsialno-ekonomicheskogo razvitiya" [Resolution of the 6th Congress of the Arctic Expert Club “Development of Mono-Cities in the Arctic Zone of the Russian Federation: Problems and Challenges of Social and Economic Development”], 2015. Institute of Regional Researches and Urban Planning of the research Institute of the Higher School of Economy. Date Views 13.11.2016 www.hse.ru/data/2016/10/10/1108774692.

Navstrechu "zelenoy" ekonomike: Puti k ustoychivomu razvitiyu i iskoreneniyu bednosti. Obobschayuschiy doklad dlya predstaviteley vlastnyih struktur [Towards the “Green” Economy: Ways to Stable Development and

Liquidation of Poverty. Generalized Report for Representatives of Power Structures], (2011). UNEP. Date Views 13.11.2016 www.unep.org/greeneconomy.

Yashtalova, N.N., 2013. Vozmozhnosti "zelenoy" energetiki v severnyih regionah [Opportunities of “Green” Energy in Northern Regions]. Development of North and Arctic: Problems and Development, Apatity: 130-131.

Barannik, A. and I. Voznyuk, (2009). Arktika kak vazhnyiy geostrategicheskiy region stolknoveniya natsionalnyih interesov veduschih zarubezhnyih stran [Arctic as an Important Geo-strategical Region of Confronbting of National Interests of Leading Foreign Countries]. Foreign Military Review, 1: 3-11.

Haines, L. (2015). European Union Bid to Become Arctic Council Observer Deferred Again. Date Views 31.11.2016 barentsobserver.com/en/arctic/2015/05/eu-bid-become-arctic-council-observerdeferred-again-04-05 free.

SOCIAL MANAGEMENT SYSTEMS' MODELING BASED ON THE SYNERGETIC APPROACH: METHODS AND FUNDAMENTALS OF IMPLEMENTATION

Oleg Mikhailovich, Barbakovindustrial University of Tyumen
Yuliya Ivanovna, Koltunovaindustrial University of Tyumen
Elvira Venerovna Shakirova, Irkutsk National Research Technical University
Elena Gennadyevna, Kostylevaufa State Petroleum Technological University
Lyutsiya Mugtabarovna, Gaisinaufa State Petroleum Technological University

ABSTRACT

The present development stage of Russian industrial companies may be referred to as rather difficult and contradictory. Social transformations specifying the transition from administrative-command methods to the market relations have been completed. There was a replacement of the personnel potential which grew up in the socialist traditions for the generation which has been brought up in the spirit of the market economy. Most of all, it affected the large russian industrial corporations, which are, first of all, vertically integrated companies of the oil and gas complex. The social study of the domestic management problems of the oil and gas complex enterprises is especially urgent since the latest political, social and economic changes which concerned not only russia, but also the world markets of raw materials, sharply revealed the crisis of the operating management systems in many enterprises. A large enterprise in such conditions can exist by means of an invariable internal social environment, not static but a constantly developing system of social communications and relations between the employees. The necessity of integration of the socially oriented synergy management at the enterprises of oil and gas complex has been proved in the article. The relevance of the subject results from an objective contradiction of the available social, professional, managerial staff potential of oil and gas entities and the lack of possibility of its implementation in the organizational structures existing at this stage.

Keywords: modeling, synergetic approach, concept, social environment, socially oriented management, bifurcation point, complicated open system, external environment factors.

INTRODUCTION

The analysis of the management systems of the enterprises of oil and gas industry conducted in this article showed that they were not ready to the conditions of the political, social and economic crisis which began in the second half of 2014. Not only the financial performance indices connected with the critical prices' fall for the raw materials had been affected, but also the personnel potential.

The socially oriented management is urged to resolve many social problems in the industry, but it is required to take into account, in case of the management system development model, the specificity of the oil and gas complex enterprises, without destroying, but on the contrary, strengthening the social potential of the oil and gas complex. The use of the synergetic approach makes it possible to achieve the management models creation, while preserving the social features of the existing organizational structures at the enterprises.

The social research which had been done, showed that there was a high staff turnover at the enterprises of the industry, generally among the most competent and experienced specialists, a high coefficient of the personnel turnover, both recruited and dismissed, was traditionally noticed. The lack of the employees' motivation to continue their careers in that industry, their orientation on a temporary employment (the main goal being to save up some money, rather than develop their own company) – these and other managerial problems considerably increase instability at the industrial enterprises in the times of crisis. (Gaisina, Bakhtizin, Mikhaylovskaya, Khairullina, Belonozhko, 2015; Gaisina, Gareev, Valitova, Khairullina, Ustinova, 2015).

Such operating conditions of the enterprises are also complicated by the fact that the oil and gas complex is presented by a number of organizations that differ in their structure. The systems managing so many social objects stand out as highly complex ones. Thus, if the implementation of the socially oriented management becomes a goal, it is necessary to develop a special synergetic model of the management system, which will allow every participant of the production process to meet his or her social needs and interests. (Belonozhko, Silin, 2014; Belonozhko, Scythian, 2011).

Let's pay attention to the imminent relevance of such developments from the viewpoint of the practical management technologies. In the 70-s of the 20th century the theory of organizational development started spreading as a practical technology of the implementation of a socially oriented management model. Due to the fact that a number of consulting agencies were opened, and development departments began to appear in the structure of large industrial corporations. However, the technical revolution at the end of the 70-s – the 80-s of the 20th century**,** followed by an intensive economic development, significantly shifted the focus from the humanistic concepts of long-term organizations' development to seeking the optimum rapid solutions of the productivity improvement. A long systematic work of the consultants with the organizations' staff was replaced for the work with the senior and mid-level management, and instead of working with the corporate culture, the focus was shifted to the quality improvement of interpersonal communications among the individuals.

Thus, the practical results and the results of implementation of the socially oriented management concept were arranged in three main directions: the organizational humanity theory, the open systems' theory and the training through practice theory. The specified theories provide an available technology of the socially oriented management implementation, intercrossing with one another at a varying extent with the principles of the synergy modeling of the management systems.

But the use of the principles of the provided directions in the social conditions of the domestic oil and gas industry is impossible without a proper correction. However, it does not invalidate the practical value of the results already obtained in the foreign management practice.

According to the theory of the organizational humanism offered by D. Porras and R. Golembiewski when modeling is a socially oriented management system, in the center of

attention should not be organizational processes, but the individuals and interpersonal relations. (Porras, 2007; Golembiewski, Munzenrieder, 1988). In this case, the organizational development achieves certain success irrespective of the surrounding situation (the developed or the developing countries) and the patterns of ownership (the state, private enterprises, individual entrepreneurs). However, later R. Golembiewski expressed doubts concerning the independence of the organizational development on the external environment.

METHODS

In this work the basis of modeling management systems was constituted by the value statements of the organizational humanism, which define interpersonal relations as a leading aspect of the management system impact on the interpersonal communication as the organizational environment components of the enterprise. However, it is necessary to consider the factor of a greater dependence of the entities on the external environment, that is observed in the Russian society and can be minimized in western type societies. It is necessary to agree with the internal isolation of the social environment of the entities, but it is impossible to ignore the external relations, since historically domestic enterprises represented the most important part of the social and economic system of Russia and, if we are not speaking about a sufficient state support, then within the management system it is necessary to consider the human resources, first of all, as professional social groups. So, the increase in prestige of this or that professional status of a worker or the determination of the social value of the professional groups at the enterprise scale can play a key role in the processes of integration and management (Barbakov, Romanovsky,20014; Barbakov, Bar, 2015; Valitova, Gareyev, Grogulenko, Kostyleva, 2016). The attention should be paid to the professional identity forming, the social environment of oil and gas entities should reveal, increasing, rather than reducing the external relations. Apparently, when modeling management systems the attention is not focused on the separation from the external social environment, but on the contrary, on the enterprise integration in the social and economic system of the Russian society.

The open systems' theory became at the same time both a continuation of the system approach and the organizational development method. The postulate that the organization as an independent social organism actively reacts to any external and internal impacts by changing its structure and functions is its cornerstone (Von Bertalanffy, 1973). At the same time, the organization as a system is not uniform and consists of separate elements – subsystems (technological, social, psychological, etc.).These subsystems closely interact between themselves, therefore any change in one part of the system inevitably leads to the changes of other parts. In this regard, the intervention of consultants should be complex anyway and should consider possible changes of the entire system in case of the impact on separate elements. Besides, the consultants should consider the direction of the environmental factors' impact which can promote positive qualitative changes of the system as well as hinder them to a high extent.

The provided synergetic modeling of the entities' management systems is based on the fundamental principles of the system approach; the basic statements of the open systems' theory are used as well. But it is necessary to consider social properties of the professional domestic environment of the groups that are present in the industrial sphere, such as the conservatism and the lack of bright aspiration to innovations. It is not a shortcoming, but a feature, thus, it is not necessary to pay a lot of attention to the organization development impulses as the supporters of the theory of the dug-out systems imagine.

The third concept which can be used in case of the modeling management systems of il and gas entities based on the synergetic approach to the management possible to note is the theory of training through practice the basis of which was formed by Lippitt's work, Watson, Westley, White etc. (Mazur, Shapiro, 2000). This theory offers a complex technique of the impact on the organization, which is based on the laboratory methods of Lewin's trainings and works on the activity psychology. As a result, the model of procedural consulting impact on the organization was created. The main source of the organization development, by this theory provisions, is the fixed training of the employees through the practical action (system of trainings). And the direction to it is set by the consultants for the organizational development together with the senior managers determining the main (desirable) strategy of the entity.

For the purpose of carrying out necessary transformations of the organization environment when modeling a management system, it is convenient to organize the implementation of such type of training, thus creating the managerial competences among the employees. However, we speak about a social environment of industrial enterprises which, as shown by statistics only in 10 – 15% of cases, use innovative technologies in the management, as well as in the production processes (Kozlova, 2012). At the same time, it is noted that the innovations are implemented not via the direct interactions' system but they also concern information technologies. Here, the social features of professional social groups of the entity play a role, employees prefer not to change the system of direct social contacts, keeping the relative stability and direct the intervention assumed by the supporters of this theory that may cause a negative reaction. It is possible to realize the principles of the socially oriented management within the training through practice theory, using only the internal potential, gradually introducing the consulting technologies into the organization environment.

Thus, the basic provisions of the offered management systems' modeling based on the synergetic approach are determined, firstly, by the results of the conducted complex of the social research which reflects the condition of various aspects of the management system of entities of oil and gas industry. The determination of many contradictions which are arising in the management process having the social nature was the result of the research. Therefore, the management model must be focused on a social environment of the entity – both the external and the internal ones for the elimination of the problems determined by the research.

It was proved by the expert poll as well, where the most accepted opinion about the necessity of applying the system of social relations has been expressed. Together with this the experts note the difficulties in the management of such large number of social objects and the need for the transformation of the existing management system of the industry in general.

Secondly, in case of conceptualization of the modeling, the static data have been taken into account, concerning the state of modern oil and gas industry of the Russian society; the Russian legislation and regulations on the management of oil and gas complex have been analysed, as well as the data of the official statistics of the management sphere state in oil and gas industry; the economic, the accounting, the financial reporting of some entities of the oil and gas industry. The analysis has shown the need for a change of the managerial paradigm for the entities that is connected with the unfavorable social and economic conditions in the country. Together with this, insufficiency of skilled workers in the management sphere has been noted. This insufficiency impedes the management reorganization and the adaptive approach is needed enabling to use the available managerial and professional resources.

Thirdly, the modeling reflects the current trends of the management theory transformations based on the system and synergetic approaches to the analysis of social

management processes. Such approaches allow considering all the modern practices of management, on the one hand, and keeping the integrity of the social environment of the entity and introducing the necessary changes, ensuring a new quality of the system of social relations, on the other hand.

RESULTS

But in the course of development of an adaptive application model of the identified provisions and the principles of the synergetic management, an important methodological problem came to light. Considering that their own methodology of the synergetic management theory has not been created yet, in a practical part of its application it is possible to use the closest related "method of the organizational development" (Pugacheva, Solovyenko, 1999).The method of the organizational development represents the scientific theory and methodology, which is based on the combination of behavioural approach and humanistic principles the ultimate goal of which is a systematic change of operation of an organization due to the directed external interference, for the solution of tasks on the performance improvement (Spivak, 2000). The part of the ideas of the organizational development method was taken from the theory of the human relations of D. McGregor who had suggested considering the organization as a component of two systems – technological and social ones. His " Theory X" and " Theory Y", and later "Theory Z" by W. Ouchi which reflected the Japanese management model showed the influence of the social communications between human relations and the management system on the labor productivity.

Outsourcing became the other key idea of that method for the creation of a steady organization. A big role was played by the works of K. Lewin, a social psychologist, one of the original authors who offered the laboratory training, polls, observation, feedback and the research through the action in relation to the creation (restructuring) of the industrial body in the development of HR management (Lewin, 2000).

All the specified aspects can be used when modeling a management system on the basis of the synergetics' principles as the synergetic effects of the organizational environment can be provided as a complex training system of the organization from the outside directed to the management quality improvement in the conditions of a constantly changing environment (Bennis, 2000). For the development of the organization resistance to the changes of the external environment, the intervention shall affect, first of all, not the production structure and technology, but the culture of the organization as a system of ethical values, beliefs and standards of the employees' behavior.

It corresponds to the methodological basis of this research and the developed system of the synergetic modeling where the entity is a management object of a complex open social system. The provision on the self-development of the organization is also advanced as a basis when a need of the intervention about which the organizational development method supporters speak, is minimal.

The model of the procedural consultation of organization managers on the purpose of forming the directions of the organization development worked out by E. Shein can be used in the implementation process of the synergetic management. The offered procedural consultation

includes the diagnostics of a problem, the goal setting and the tasks, the picture of the "present" and "future" of the organization, the development of a number of methods, individual for each

organization, and the methods of the goal achievement, the introduction and the tracing of the results. At the same time E. Shein differentiated between the process of consultation and a "purchased model of consultation" when the manager would buy information offered by the consultant (Shein, 2002).

The control of the external environment factors' role specified by R. Beckhard needs to be performed by means of the outsourced consultants in the organization development (Beckhard, Pritchard, 1967).

In terms of foreshortening of the defined tasks of paragraph 13 the fundamental principles of the implementation of the organizational development advanced in F. Hughes' work, who divided them into 4 major groups are of great interest (Mazur, Shapiro, 2000). Such principles are offered also for the use in the synergetic approach implementation with a small correction. For a comparison of the applicability of the postulates of the organizational development to the synergetic approach implementation within the approbation of the author's concept let us consider them in more detail.

Group I: principles of the organization employees' development:

1) The organization staff has a need for a self-improvement and a personal growth. This requirement can be most effectively satisfied with two methods: the support from the organization management or the competition ("to challenge");

2) Abilities of the most part of the employees are used by the organization not to a full extent, they could have made more profit if they were entrusted with more responsibility and were given more opportunities to show themselves;

3) Every person possesses the emotional sphere influencing their likes and dislikes including their contacts with other employees. As a rule, in the formal organization these tendencies are not considered that reduces the satisfaction extent from the work and the quality of work;

4) Human feelings are important and open additional opportunities of managing people, forming a command spirit, setting and solving complex tasks, improving the labor life quality and the job satisfaction.

Group II: principles of the team development.

5) Initially the labor team itself is neutral. The neutrality is broken inside the informal groups depending on the nature and type, can bring both the profit to the organizations, increasing efficiency of work due to mutual cooperation, and harm;

6) The performance of the labor team can be significantly increased at the expense of the satisfaction of the individual needs of the team members and forming the favorable interpersonal relations on the basis of mutual cooperation;

7) The effectiveness of the team work can be increased due to the restriction of the formal leader' managing function and granting more independence to the team.

Group III: principles of the organization development in general.

8) The organization represents a complex system in which the change of one of the elements (subsystems) inevitably attracts the change of the other elements;

9) Most of the organizations create an unfriendly environment for interpersonal interactions in which the level of mutual cooperation and support of the workers is much lower than a desired one;

10) The organizational structure isn ot static, it can be changed on the purpose of meeting of the individual, collective or production needs.

Group IV: principles of interaction.

11) A frequent application of a stressful strategy "victory or defeat" significantly reduces the quality and the effective performance of both the organizations in general, and the certain employees, it ceases being a significant incentive very quickly;

12) The majority of interpersonal conflicts between the employees is caused by the shortcomings of the organizational structure, but not by the qualities of direct participants of the conflict;

13) The resolution of interpersonal conflicts in the organization should not take the path of "punishment" or "concealment", but it should be an open discussion of the reasons and problems which caused them. It gives rise both to the personal growth of the employees, and to the efficiency growth of the organization.

Thus, so far it is possible to present the modeling of the management systems based on the synergetic principles, using the organizational development method provisions and the practice of the consultative impact. Such modeling includes the determination of the purposes, tasks, impact stages on the management objects and also the results' tracing (feedback). The basis of the organizational development model through the procedural and consulting impact (which is often called by the term "intervention"-invasion in literature) rests on three main postulates.

1. The choice of technology and methods of the consultants' intervention into the organizational development fully depends on the search and diagnostics of the organizational problems determining the direction and the depth of the necessary correction.

2. Heads of the organizations who are involved both in diagnostics of the organizational problems, and in planning of correcting impacts should be widely attracted. Openness, clearness, availability of the consultants' actions of the organizational development should be attracted.

3. The consultation should include not only and not just the changes in the organization, but the training in these technologies among the staff members being able to maintain the development directions achieved and promote it actively in the future.

It is important that the method of the organization development should be aimed at the research of the problems of the organization by the consultants through a set of special practical methods and techniques (observation, poll, an experiment, a laboratory training), and should include participation in the diagnostics and the problem resolution, both on the part of the administration of the entity, and on the part of its employees.

Within the implementation of the socially oriented management it is especially important, as such technologies allow managing the social environment, obtaining the implementation of the main values of the concept.

As it is seen from the research, the method of the organizational development is really the closest to the synergetic approach of the creation of organizations, and has the expressed socially oriented focus. Therefore, in the solution of the problems of management systems' transformation by the entities (on the example of oil and gas industry) the same methods of active problems' identification and the innovations' implementation can be utilized.

Nevertheless, we will focus our attention on the distinctions. The comparative analysis of the synergetic approach and the method of the organization development is given in table 1.

TABLE 1
A COMPARATIVE ANALYSIS OF THE SYNERGETIC APPROACH AND THE ORGANIZATION DEVELOPMENT METHOD

№	index	Method of organizational development	Synergy approach
1	2	3	4
1.	notion of the organization	**Complicated open system**	Complicated open dissipative spontaneous system
2.	structure of the organization	It consists of the social, technological individual and psychological subsystems which mutually influence each other	It consists of the social and technological subsystems which mutually influence each other
3.	attitude to the external factors	It affects the system, but has no decisive influence (the theory of organizational humanity as constituting theories the organizational development denies such an impact, believing that interpersonal interactions are the cornerstone of changes)	It is a source of self-development and self-organization of the system, forming the external conditions of the crisis leading to the points of the bifurcation development
4.	function of the management system	In contact with a facilitator (a consultant for the development) it is supposed to provide conditions for the formation of such interpersonal relations among the workers of the team that would provide high-quality organization development	It impacts on the organization which can enter as a resonance with the self-development direction strengthening it over and over again, and at the same time in a dissonance, becoming a source of instability of the system and a possible crisis
5.	interpersonal interaction role	The quality of interpersonal, group relations is a basis of organizational development and a source of the increasing efficiency of the organization	Interpersonal interaction is a part of more complex structures (group, team), the effective interactions can give a synergetic effect (A multiple excess of the algebraic amount of the efforts), the inefficient interactions, on the contrary, are the reason of instability of the system
6.	development source	The impact of a consultant facilitator who can be both external and internal in relation to the organization. Out of the purposeful impact there is no development	It is inside the organization, it represents the amount of the individuals' interactions of formal and informal structures in the organization, and also the organization and factors of the external environment

The main link uniting these approaches is the social orientation of the management: the source of changes of the organization (including a directed change that is the development) is the employees who interact among themselves, with the administration of the entity and with the external environment. Nevertheless, there are also essential differences (table 1).

An essential advantage of the method of the organization development is well thought over and approved of by the methodology of the structurally functional changes of the organization. The method of the organization development had widely been adopted originally in the USA and then it spread around the world. Now it is applied not only in commercial enterprises, but also in state organizations, public and international structures, etc. At the same time the method of the organization development won the popularity in many industries, including chemical, oil and gas, automotive, defense industries. Theoretical developments of the theory of the organization

development are actively applied in the health care, education, social sphere, at the level of state bodies and local self-government, etc.

In the course of modeling the majority of acceptances and methods of the organizational development were adapted for the use of the synergetic approach. The basic provisions of the management system modeling based on the synergy approach, are the following:

1. Organization is a complex open system.
2. Organization is capable of developing.

In modeling the implementation process the main attention is paid to the source of changes and development, the external factor or the external environment factors are not used here, here we speak about the forming of such a social environment which stimulates the development of the organization and the subsystems constituting it. Critical changes of the external and internal factors to the bifurcation points of the development are the main sources of the social environment development of the entity.

Having analysed the current state of the management system of the entities of oil and gas industry and the main problems concerning social conditions of their functioning we come to a conclusion that the solution of many contradictions is possible in case of a special modeling of management systems. The modeling of management systems within the considered synergetic approach and the socially oriented management requires the development of a special concept allowing to solve the specified problems of management of the industry, having realized the model of the synergetic management of the oil and gas entities.

Within such offer the adapted concept of the synergetic socially oriented management which represents the management of oil and gas industry entities as the system of interconnected ideas of this or that event (in the study it is about the purposes, tasks, principles, methods of management of oil and gas entities (Latin conception is a frame of reference, the main idea) has been developed (Social research: methods, technique and statistics: The dictionary reference, 1991), in the foreshortening of the principles of synergetics and socially directed values.

The concept presented is based on the principles and provisions of the socially oriented management, the developed assessment criteria of the synergetic effects, properties of the management system and organizational environment, methods and the synergetic management techniques of the social relations system.

The concept provided is necessary and urgent for modern entities of the industrial type, as represents, despite the difference in the professional specialization, a complete production cycle: from the geological exploration to the sale of oil products to the consumers.

Within the provided socially oriented concept based on the synergetic approach, the object is the social management practice implemented through the separate components at the entities of oil and gas industry. The object was determined proceeding from the tasks and purpose of this research implemented by means of studying the organization environment of the entities of oil and gas complex in the conditions of transformation. The subject, action of the concept, is also determined in the framework of this study which consisted of social aspects of the implementation of the socially oriented management, and characterized by the following impact aspects:

1. The political, social and economic, administrative, legal, market relations which are formed among the public authorities, local administrations, market environment (competitors, suppliers, contractors, customers) and the systems of the social management at the entities of oil and gas industry;

2. The social and economic, administrative and legal, social and psychological relations developing among various levels of management systems of the studied group of companies;
3. The social and economic, administrative and legal, employment, disciplinary, social and psychological relations developing among the management systems of the entities and the non-management employees.

DISCUSSION

The purpose of the study assumes the development of the sociological concept of the socially oriented management on the basis of the synergetic approach. The offered concept is designed to guarantee the practical results of the synergetic approach application, solving the contradictions existing at the moment in the socially managerial sphere, and proceeding from it, the main objective of the implementation of the author's concept is:

1. The increase of the management systems' resistance of the entities of oil and gas industry to the crisis phenomena of the domestic social and economic sphere.
2. The stabilization of the professional structure of the entities.
3. The increase of the comfort level of labor conditions.

The comfort growth of the employees motivation of the productive work and the career promotion in the entity.

The purpose of the concept determines the levels of the solvable tasks which are determined proceeding from the current state and the problems of the management sphere of oil and gas industry:

1. On the level of the industry it is the strengthening of the social value of the entities within the regional social policy, forming the special social programs of support and development of the industrial professional teams;

2. On the fuel and energy complex market level it is the creation of social conditions of the labor competitiveness support of the entities as that of the employer in the constantly changing market conditions.

3. On the level of the vertically integrated oil companies (VIOC) it is the support of professional social groups by means of the determination of oil and gas industry workers' steady social status, the labor quality improvement, labor quality socialization and the professional competencies, monitoring of the labor mobility;

4. On the level of the entities it is ensuring personal interest of the employees in the positive results of the work, the level of tension decrease from severe production conditions, ensuring the implementation of the creative potential of the employees.

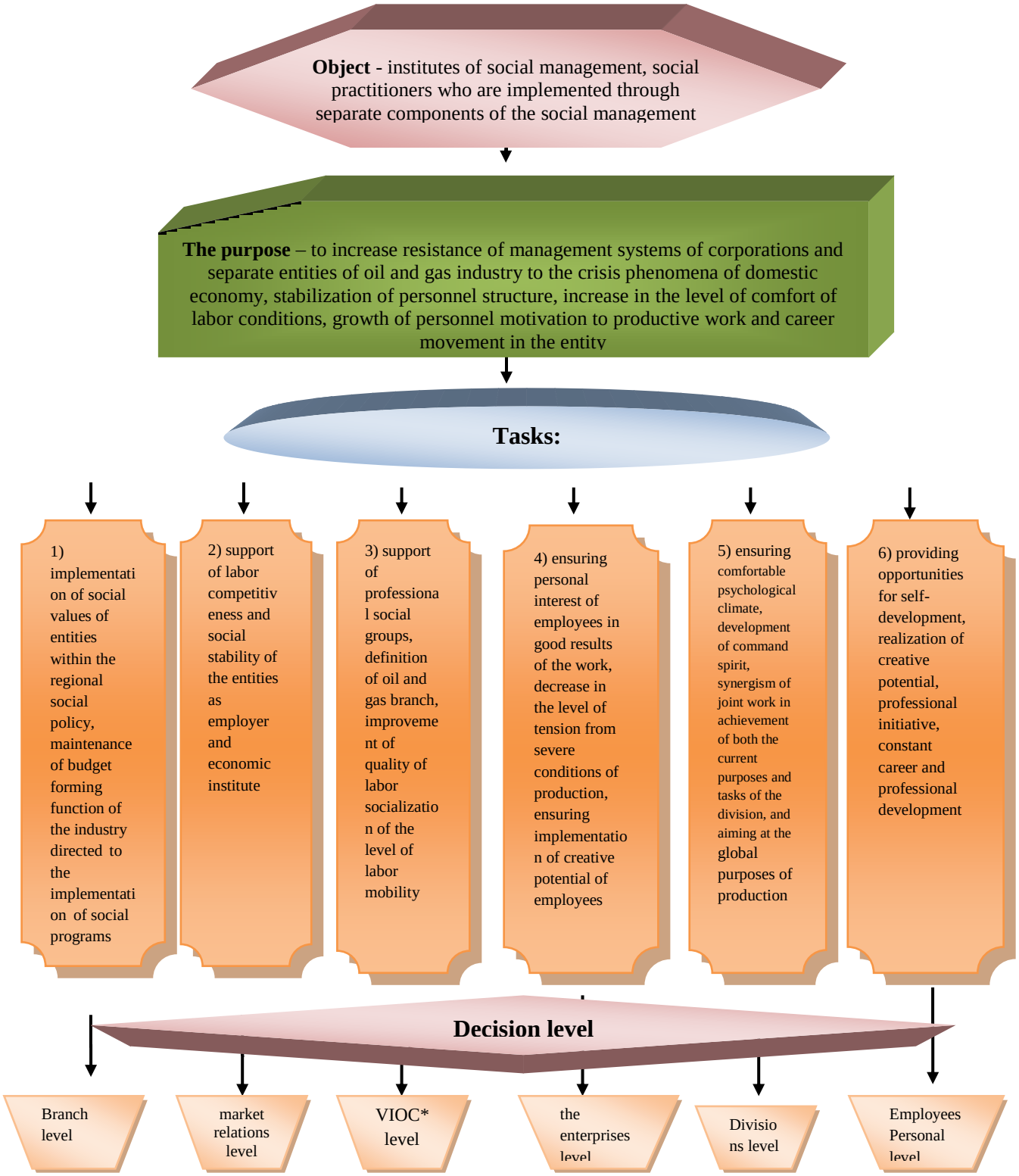
5. On the level of divisions it is ensuring a comfortable psychological climate, the development of the command spirit, synergism of the joint work in the achievement of both the current purposes and division tasks, and aiming at the global purposes of the production.

6. On the personal level of the employees it is providing opportunities for the self-development, implementation of the creative potential, professional initiative, fixed career and professional development.

The schematically offered management concept of the entities of oil and gas industry can be presented as follows (Fig. 1)

** VIOC-vertically-integrated oil company*

Figure 1
AUTHOR'S SOCIALLY ORIENTED MANAGEMENT CONCEPT OF OIL AND GAS INDUSTRY ENTITIES



The tasks of the urgent difficulties of the implementation of oil and gas industry management of the entities which arose in those conditions, contradictions of the entities' functioning as the key social objects of the industrial sphere have been defined. The solution of these tasks is fully possible only within the socially oriented synergetic approach towards the creation of management systems.

The offered concept reflects multilevel management systems of oil and gas industry entities including not only a sample organizational structure of the domestic vertically integrated oil companies, but also the state regulation and market environment. At the same time the task of management systems on the market and state level is, first of all, the stability development of the organization in the external environment, and on the production level is the forming of self-developing and self-trained production mechanism.

CONCLUSION

Summing up the results, it is important to note that at this stage it is necessary to study the sales terms of the socially oriented management concept in oil and gas complex entities that is specified by the transformation of the modern Russian society. Within the sociological science the problem of the application possibility of the synergetic approach to the management as a methodological basis of modeling of a socially oriented management system becomes aggravated (Gaisina, Mikhaylovskaya, Khairullina, Ustinova, Shakirova, 2015; Gareyev, Kostyleva, 2016; Ustinova, Rudov, Kostyleva, Grogulenko, Kulishova, 2016). From the point of view of the synergy presentation of the organizational environment, the role of the management system changes. A lot of modern theories including a method of the organization development, present the manager as the assistant and colleague of the consultant keeping the organization development within the provided concept the role of the manager comes down to the directing impact of unstable fluctuations of the organization, ability of forecasting crises, and the directed point impact at the moments of bifurcations. Now, in the sociology of management there are no unambiguous relations and complex reasons for the synergetic methods' use. The paradigm shift of the management determines the change of forms and managerial impact methods, on the one hand, strengthens the social orientation in the management, and on the other hand, the compliance to the existing organizational environment of industrial enterprises is required. The synergy approach which allows to realize the natural social potential of organizational teams meets such requirements, without breaking the integrity of the entity.

REFERENCES

Barbakov O.M, Bar M. M (2015). Marketing communication in an industrial environment. Problems of forming of a common economic space and social development of the CIS countries. *Materials of the international scientific and practical conference.* Tyumen: TSOGU. pp. 45-53

Barbakov O.M, Romanovsky D. V. (2014). Anti-recessionary policy on a small businesses. Problems of forming of a common economic space and social development of the CIS countries. *Materials of the international scientific and practical conference.* Tyumen: TSOGU. pp. 266-269

Beckhard R

, Pritchard V. (1992). *Change of essence: Art of creation and promotion of change of the environment in the organizations (Jossey-bass non-commercial sect).* New York.

Belonozhko, M.L., Scythian, A.L. (2011). *The organizational basis for functioning of the government at the regional level.* Tyumen: TSOGU.

Belonozhko, M.L., Silin, A.N. (2014). *Social research in the decision making mechanism.* Tyumen: TSOGU.

Bennis W. (2000). *Leadership of Change. Breaking the Code of Change.* Harvard Business School Press, Boston.

Gaisina, L.M., Gareyev, E.S., Valitova, N.E., Khairullina, N.G., Ustinova, O.V. (2015). Corporate Staff Identity as a Factor of Increasing Labor Productivity. *Mediterranean Journal of Social Sciences.* MCSER Publishing, Rome-Italy. Vol. 6, No. 5, pp. 274-285.

Gaisina, L.M., Mikhaylovskaya, I.M., Khairullina, N.G., Ustinova, O.V., Shakirova, E.V. (2015). The Role of the Media in the Spiritual and Moral Evolution of the Society. *Mediterranean Journal of Social Sciences.* MCSER Publishing, Rome-Italy. Vol. 6, No. 5 S2, pp. 93-101.

Gareyev E. S., Kostyleva E. G. (2016). Middle class as an element of stability of social hierarchy of the Russian society. *Economy and management: scientifically - the practical magazine*. No. 3 (131). pp. 73-77.

Gaysina L. M., Bakhtizin R. N., Mikhaylovskaya I. M., Khayrullina N. G., Belonozhko M. L. (2015). Social Technologies as an Instrument for the Modernization of the Social Space in the Social and Labor Sphere. *Biosci Biotechnol Res Asia.* 12(3), pp. 2947-2958.

Golembiewski R.T., Munzenrieder R. F. (1988). *Phases of Burnout: Developments in the Concepts and Applications.* - New York.

Kozlova E. V. (2012). Implementation of the innovative strategic policy in the industrial enterprises of Russia: conditions and prospects. *Bulletin of the Saratov state social and economic university.*(2) 103-106.

Lewin K. (2000). *The theory of the field in social sciences.* SPb.: "Sensor".

Mazur I. I., Shapiro V. D. (2000). *Restructuring of the entities and companies.* Moscow: The higher school.

Porras, J. (2007). A *Success constructed forever. How to give a sense* to the existence. Moscow: CJSC Olympe-business.

Pugacheva E. G., Solovyenko K. N. (1999). The higher school: some problems of self-organization. *Sotsis.* No. 11. (Page 99 – 101).

Shein E. H. (2002). *Organization of the culture and leadership: the monograph.* SPb: St. Petersburg.

Social research: methods, techniques and statistics: Dictionary reference. Moscow, 1991.

Spivak V. A. (2000). *Organizational behavior and personnel management.* SPb: St. Petersburg.

Ustinova O.V., Rudov S.V., Kostyleva E.G., Grogulenko N. V., Kulishova N.D. (2016). The processes of globalization in the Russian views. The *Man in India.* T. 96. No. 7. pp. 2165-2177.

Valitova N. E., Gareyev E. S., Grogulenko N. V., Kostyleva E. G. (2016). Management of the international relations in the polyethnic regions of Russia (on the example of the Republic of Bashkortostan). *Materials of the international scientific conferences.* Yerevan: Yerevan state university. pp. 28-31.

Von Bertalanffy, (1973). *History and the status of the general theory of systems. In the book: System researches. Methodological problems. Annual.* Moscow: Nauka

REGIONAL FEATURES OF THE INNOVATIVE ACTIVITY FORMATION AS A DETERMINING FACTOR IN THE DEVELOPMENT OF THE RUSSIAN ECONOMY

Elena Petrovna Kiselitsa, Tyumen State University
Natalia Nikolaevna Shilova, Tyumen State Oil and Gas University
Irina Aleksandrovna Liman, Tyumen State University

ABSTRACT

The reasons for the unevenness of the formation process of the economic entities innovative activity in the time and space of economic activity of individual countries and regions within the country are considered in the article. The results of studies proving the existence of dependence of the gross regional product magnitude on the number of innovation-active enterprises in the region are described. The contributions of regions with different number of innovation-active enterprises to Russia's gross domestic product and the growth rates of gross domestic product with an increase in the number of innovation-active enterprises in the region were studied. The article describes the results of the research on the influence of various factors specific to the innovation activity of enterprises on the change of the gross domestic product for 4 clusters of regions differing in the level of innovative development due to different historically developed levels, geographic and economic factors. The heterogeneity of innovation processes in each cluster was analyzed, which has predetermined the ambiguity of the influence of various factors on the change in the gross domestic product, which made it possible to form the ratings of innovative factors defining the gross domestic product level for each cluster. Priority factors of regional development were identified and described depending on the degree of their innovative development.

Keywords*: innovative activity, regional features, innovation-active enterprises.*

INTRODUCTION

In the modern economy, the innovative activity plays a leading role, which is the logical end to the stage of the industrial economy and the transition to its postindustrial phase. This process is uneven in the time and space of economic activities of individual countries and even the regions of the country, and the process of shaping the trajectory to the innovative future is determined by personnel, scientific and technical, production, technological, financial, organizational, and other features of individual territories (Gabor Bekes Clusters, 2008). One of such components is the innovative activity of the territory, which determines the possibilities of implementing its innovative potential and characterizing, in its turn, the degree of the innovation activity effectiveness.

Innovative activity is widely regarded as the main factor of the economic growth of the territory (Porter M. E., 2003, Bilbao-Osorio B., & Rodriguez-Pose A., 2004). However, the results of empirical studies evaluating the effectiveness of individual measures to stimulate the

innovation activity proposed in theoretical works are often contradictory. The "arbitrary" choice of factors included in the empirical model of the study may be one of the reasons to that effect (Mariyev O. S., & Reshetova Ya. M. & Savin I. V., 2006). The papers consider various factors that stimulate the innovative activity of the regions, including a wide range from the level of competition in the market to the economies of scale or diffusion of technologies (Adam B. Jaffe, & Josh Lerner, & Scott Stem., 2005). Most authors pay attention to such variables as internal costs for research and development, investment in fixed assets, the volume of innovative goods, works and services, and the costs of technological innovation (Lundvall, B. & Ernst, D., 1997, Dodgson M., 2000).

However, some authors insist on the existence of an inverse relationship, in which the level of development of the regional economy, the level of income of residents, social differentiation, and the development cost component in research and development costs determine its innovative activity (Grasmik K.I., 2010).

The debate on what leads to regional economic growth and a significant increase in the gross regional product is not over yet: specialization or differentiation of sectors, or an innovative component in the context of interrelated economic platforms (Hasan I., & Wachtel P. (Hasan I., & Wachtel P. & Zhou M., 2009, Percev S.B., 2013).

The contribution of small business to the development of territories was also broadly investigated (Arora A. and Gambardella A., 2011). The backwardness of small business in innovative development from medium and large business is noted: generally, 10.1% of enterprises implement technological innovations on the economy as a whole, and small enterprises - only 5.1% (The data, http://www.gks.ru/). The gap in terms of the share of innovative goods in the total production was as follows: 6.3% in the economy as a whole, and only 1.48% - on small enterprises (The data, http://www.gks.ru/).

In this regard, it can be stated that the integral index of innovation activity in the regions corresponds to a certain extent to the value of the gross regional product, but the relationship between these indicators has not been sufficiently studied.

Different clustering options were performed and types of regions with different innovative potential were allocated in the literature (Solvell O., & Lindqvist G., & Ketels Ch., 2003, Volkova N. N., & Romanyuk E.I., 2012, Shilova N. N., & Kiselitsa E.P., & S. A. Lyuft S.A., 2016).). However, the dependence between the factors determining the degree of innovative development in each particular case is poorly studied.

All this complicates the adequate assessment of the parameters of economic impact on regional entities and stimulation of innovative factors for their development and increase in gross regional product and predetermines the further feasibility of research in this area.

METHODS

The works of foreign and national researchers in the field of economics, including modern achievements in the field of information and institutional economics, have served as a methodological basis of the study. Methodologically, this research is based on the methods of logical, system and structural analysis, decision theory, general systems theory, expert assessments, system analysis, sociological researches, economic and mathematical modeling expert assessments, and others.

Foreign and domestic monographic proceedings, regulatory acts of the Government of the Russian Federation, reference materials of the Federal Service of State Statistics of Russia,

materials of conferences and seminars, data from periodicals, Internet sources, and the empirical data obtained by the authors as a result of independent research have served as the information-empirical basis of the study.

Thus, the analysis of innovation activities is performed based on the results of statistical studies of various levels: nationwide, regional and corporate. Due to this, the authors note the following difficulties caused by the need to compare all the data under study: the irregular nature of the research conducted and their selective nature, the large array of data under study, the selection of various features that do not coincide year by year.

However, the adopted research methodology allowed the authors to obtain reliable results and ensure the adequacy of the representation of the subject of research, which was confirmed by the results of the practical implementation of made theoretical conclusions.

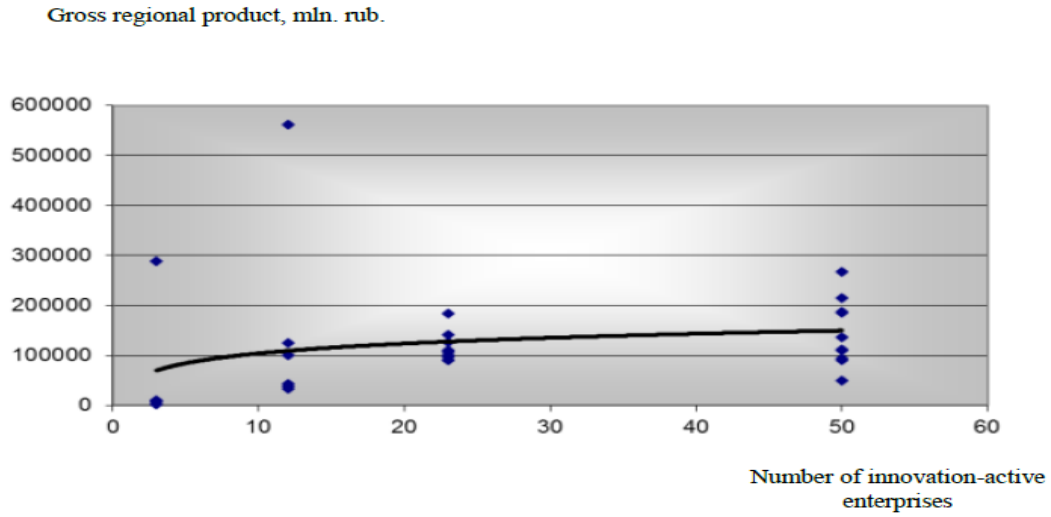
The practical significance of this study is that the results obtained by the authors can be used to study the determining trends in the economy of the territories, to predict their further development, and to reveal the features of the influence of key factors on the gross regional product. Also, taking into account sound theoretical positions, it seems expedient to determine the role of specific innovation factors in the development of individual territories.

RESULTS

It is beyond argument that the results of scientific and technical progress in the implementation of the innovative potential of the territory plays a decisive role. Scientific achievements and their active use in practical activities allowed the economically developed countries to ensure a leading innovation position. The studies carried out by the authors in 2005 on 71 out of 89 constituent territories of the Russian Federation made it possible to establish that the size of the gross regional product in Russia was largely determined by the number of innovation-active enterprises in the region (Figure 1, Figure 2) (The data, http://www.gks.ru/).

The growth in the number of innovation-active enterprises ensured the growth of the gross regional product more than 2 times. About 39.5% of the gross regional product in Russia is provided by regions with over 46 innovation-active enterprises, and regions with the smallest number of innovation-active enterprises (less than 7) - total 16.16% (Fig. 3). Despite a large number of "backward" regions, their contribution to the total gross regional product is much lower than that of innovation-active ones, and the growth rate of the gross regional product is 1.5 times lower (Figure 3, Figure 4).

Figure 1
DEPENDANCE OF THE GROSS REGIONAL PRODUCT ON THE NUMBER OF INNOVATION-ACTIVE ENTERPRISE IN THE REGION IN



2001

Figure 2
DEPENDENCE OF THE GROSS REGIONAL PRODUCT ON THE NUMBER OF INNOVATION-ACTIVE ENTERPRISES IN THE REGION IN 2005

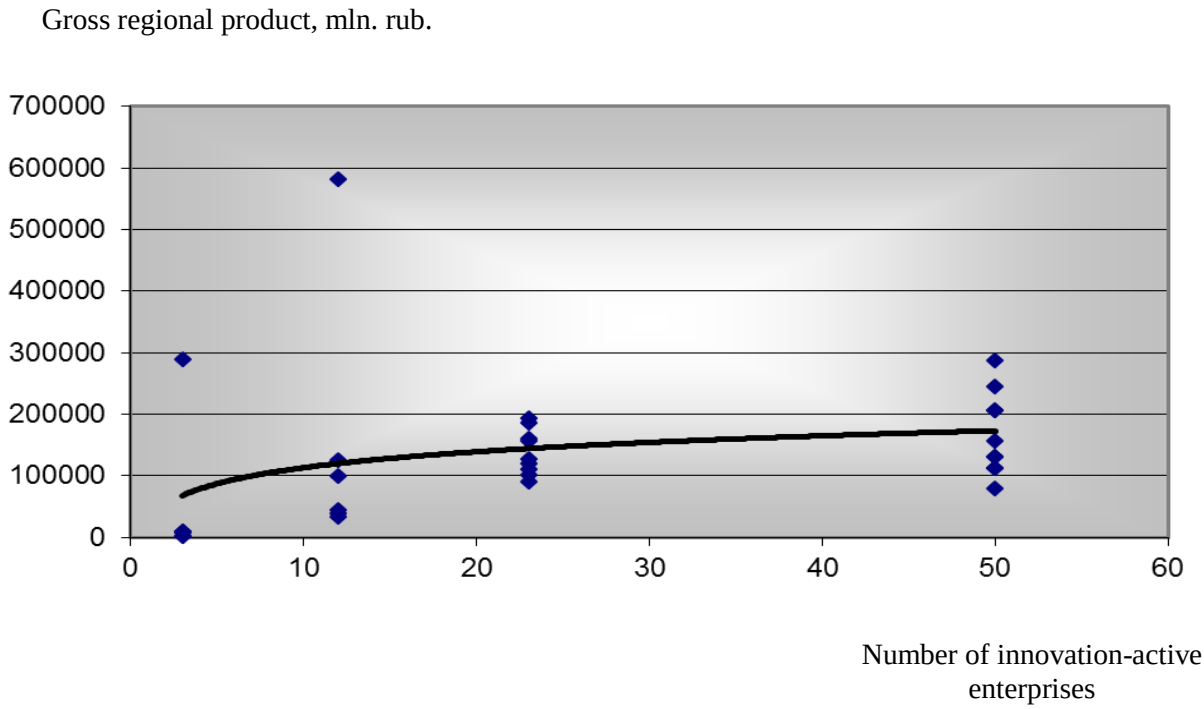
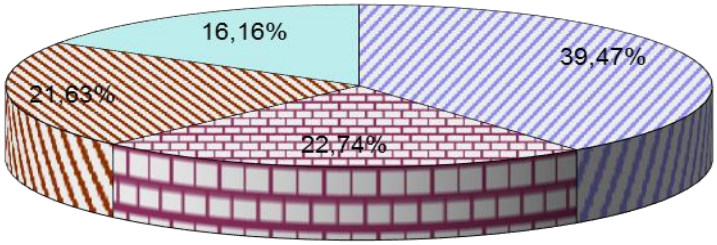


Figure 3
INFLUENCE OF THE NUMBER OF INNOVATION-ACTIVE ENTERPRISES ON THE STRUCTURE OF THE GROSS REGIONAL PRODUCT

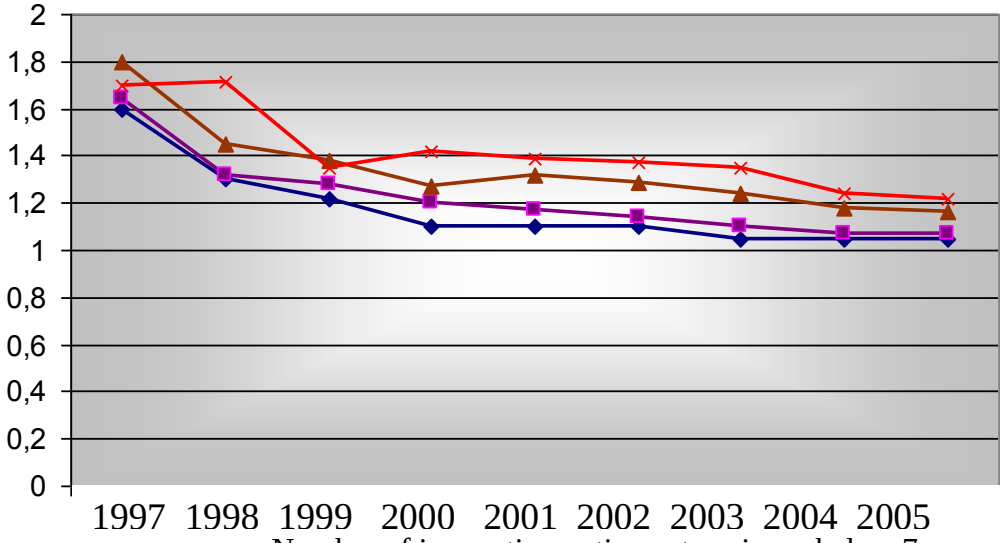


Regions with the number of innovation-active enterprises:

- above 46
- 18-45
- 8-17
- below 7

Figure 4
DYNAMICS OF GROWTH RATES OF CHANGES IN GROSS REGIONAL PRODUCT BY REGIONS, DEPENDING ON THE NUMBER OF INNOVATION-ACTIVE ENTERPRISES

Growth rates

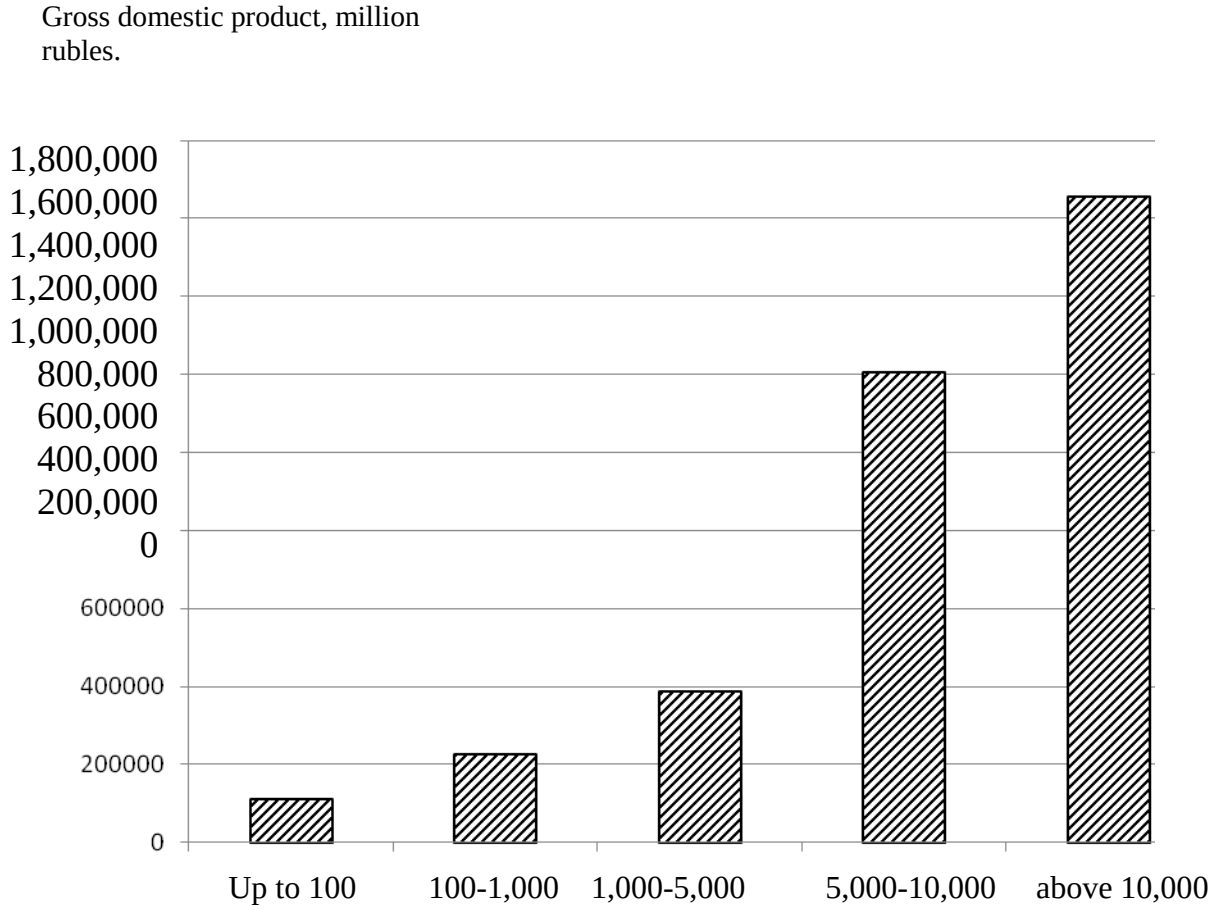


The studies carried out by the authors in 2015 on 80 out of 85 constituent territories of the Russian Federation confirmed the findings, in particular, the revealed dependence of the magnitude of the gross regional product on the number of innovation-active enterprises in the region (The data, http://www.gks.ru).

About 41.3 % of the gross regional product in Russia is provided by regions with over 46 innovation-active enterprises, and regions with the smallest number of innovation-active enterprises (less than 7) - total 14.4%. The growth in the number of innovation-active enterprises ensured the growth of the gross regional product in 2005 - more than 2 times. Despite the remaining large number of "backward" regions, their contribution to the total gross regional product is much lower than that of innovation-active ones, and the growth rate of the gross regional product is 1.5 times lower.

The close dependence (correlation ratio 0,947) of the gross domestic product in the region was revealed depending on the number of innovation-active enterprises therein (Figure 5).

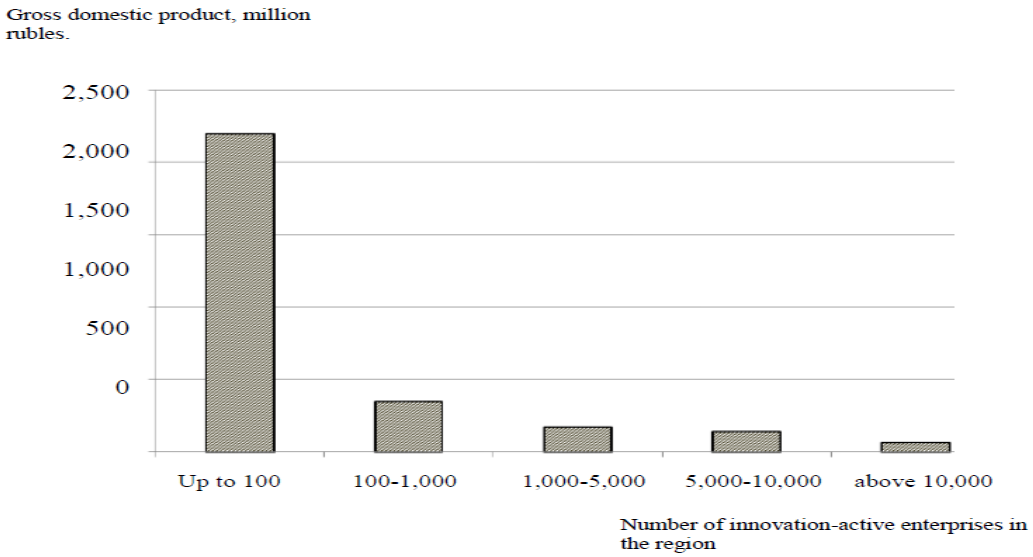
Figure 5
GROSS DOMESTIC PRODUCT PER REGION



The level of gross domestic product in regions with a greater number of innovation-active enterprises is significantly higher (the R2 was 0.978). In regions with the number of innovation-active enterprises less than 100, the gross domestic product averages 110,557.3 million rubles, and in regions with the number of innovation-active enterprises of more than 10,000 - 1,654,444 million rubles. Thus, the growth of the gross domestic product positively and steadily correlates with the expansion of the territorial space of innovation-active enterprises. Moreover, the likelihood of an increase in the gross domestic product under the influence of an increase in the share of innovation-active enterprises is significantly higher than under the influence of the share of the costs of research and development.The growth rates of gross domestic product with an increase in the number of innovation-active enterprises in the region are of particular interest. In regions where their number is from 100 to 1,000, gross domestic product is 1.7 times more than in regions with the number of innovation-active enterprises below 100. The transition to the next group (the number of innovation-active enterprises from 1,000 to 5,000) assumes an increase in gross domestic product 2.05 times, further (5,000-10,000) - 3.1 times. The subsequent transition of the region into a group with a number of innovative active enterprises of more than 10,000 is accompanied by a decrease in growth rates; the gross domestic product increases only 1.37 times. However, the slowdown in growth does not mean that it is not advisable to stimulate the creation of new innovation-active enterprises in such regions, despite the fact that the share of innovation-active enterprises therein is several times higher than that in regions with a low number of innovation-active enterprises. For example, in regions with the number of innovation-active enterprises of up to 100, the share of innovation-active enterprises is only 2.1%, and in regions with more than 10,000 - 18.9%. The increase in the number of innovation-active enterprises 9 times implies an increase in gross domestic product 14.9 times.

A high number of innovation-active enterprises in some regions is achieved, first of all, due to the active development of small innovative enterprises (Figure 6).

FIGURE 6
GROSS DOMESTIC PRODUCT PER 1 INNOVATION-ACTIVE ENTERPRISE



In regions with a small number of innovation-active enterprises (up to 100), one innovation-active enterprise contributes about 2,196 million rubles to the gross domestic product of the region's enterprise, and in regions with a large number (over 10,000) - only about 62 million rub. Such a gap of 35.4 times is very meaningful: on the one hand, it characterizes the objective processes occurring in the regions, and, on the other hand, it shows that the measures aimed at activating small businesses are timely and relevant.

The increase in the number of innovation-active enterprises by the regions with a low number (up to 1,000) per 1% makes it possible to increase the gross domestic product by 0.15%. A similar indicator for regions with the number of enterprises from 1,000 to 5,000 was 0.39%, from 5,000 to 10,000 - 1.23%. In regions with a large number of innovation-active enterprises (more than 10,000), the growth of gross domestic product decreased to 0.36%. Thus, the greatest effect allows obtaining a transfer of the region from the group of low-cost innovation-active enterprises to the group with their number from 5,000 to 10,000.

The bare fact that the innovation activity of the economies of a particular region reflects the nature of the dynamics of quantitative changes in the innovation components in the gross domestic product is undeniable. The authors made an attempt to study the influence of various factors characterizing the innovative activity of enterprises on the change in the gross domestic product, which included:

- internal costs of research, million rubles;
- costs for basic research, million rubles;
- patents for inventions, number;
- costs for technological innovation, million rubles;
- patents for utility models, number;
- a number of personnel involved in research, persons;
- a number of organizations performing research and development, units;
- a number of researchers, persons;
- costs for current developments, million rubles;
- costs for applied research, million rubles;
- used advanced production technology, number;
- developed advanced production technologies, number; and
- a number of innovation-active enterprises, total, units.

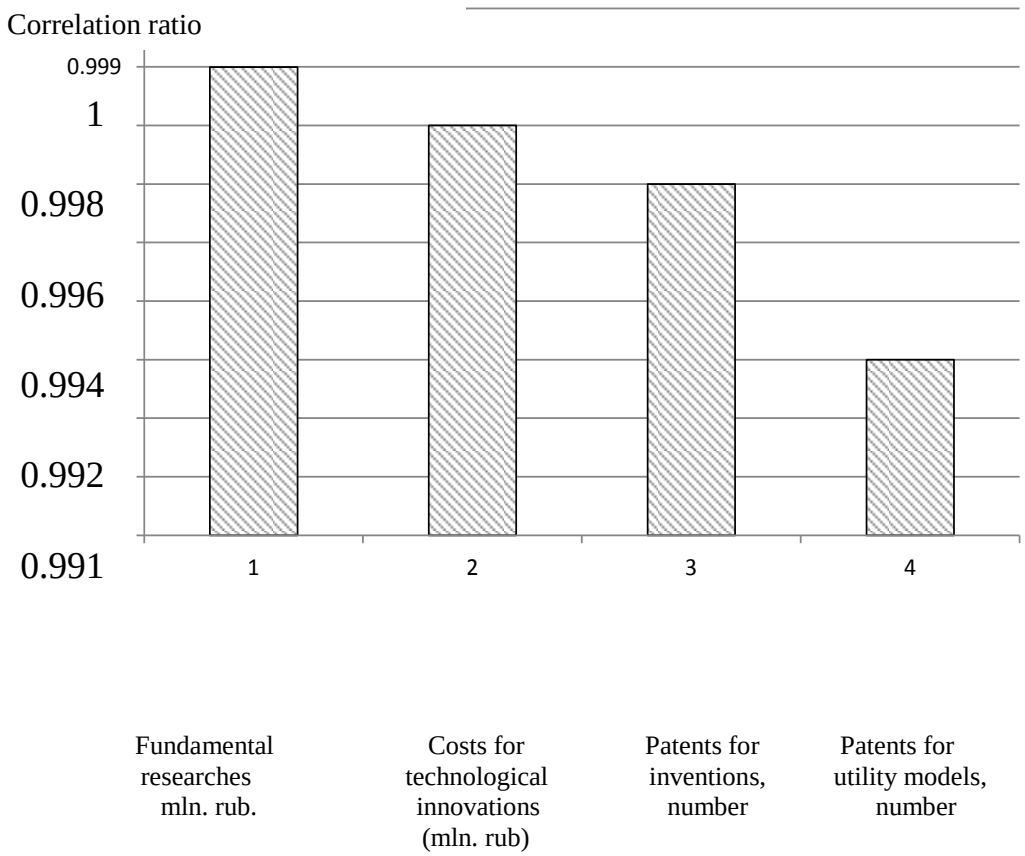
The given list of indicators is a quite extensive one and covers not only various aspects of innovation activity, but also those adjacent to it. For objective monitoring, it is necessary to conduct research on a wider range of indicators and on a regular basis, but unfortunately, such an extent of such research is extremely rare. Therefore, it was necessary to use mostly the data of the Federal State Statistics Service.According to the authors, innovation activity is primarily determined by the results of the activity of the factors determining it. However, some of the most important indicators, such as the Russian-specific investments in science and innovation, somewhat distort the magnitude of the innovative effect achieved (correlation ratio for Russia was 0.27 and for the United States - 0.83 (The data, http://www.gks.ru/)). This is partly due to the uneven nature of the innovation process in Russia by regions. Therefore, this research was carried out for 4 groups of regions - clusters, differing in the level of innovative development due to different historically developed levels, geographic and economic factors (Volkova N. N., & Romanyuk E.I., 2012). At the first stage, the authors formed a matrix for all selected indicators and all regions by three time periods: 2005, 2010 and 2015. The filling of the data matrix is close

to 100%, but some missing values had to be introduced artificially. For some indicators, for which there is no data in individual regions, for example, the number of patents and inventions or the number of advanced technologies used, the missing indicators have been replaced by the minimum values for this indicator.

To study the impact of innovation activity in specific regions on the volume and dynamics of gross domestic product, the correlation ratios between gross domestic product and integral indices on the data matrix in 2005, 2010 and 2015 were calculated. The heterogeneity of innovative processes in each cluster predetermines the ambiguity of the influence of various factors on the change in the gross domestic product.

Thus, the first cluster includes 17 regions of the predominantly European part of the Russian Federation: Moscow, Vladimir, Kaluga, Ryazan and other regions. They have sufficiently developed significant innovative potential, as well as opportunities for activating its use. Therefore, the volume of fundamental research, the costs of technological innovation and the number of patents for inventions and utility models are of paramount importance for this cluster (Figure 7).

Figure 7
THE RATING OF FACTOR DETERMINING THE LEVEL OF GROSS DOMESTIC PRODUCT FOR THE 1ST CLUSTER REGION

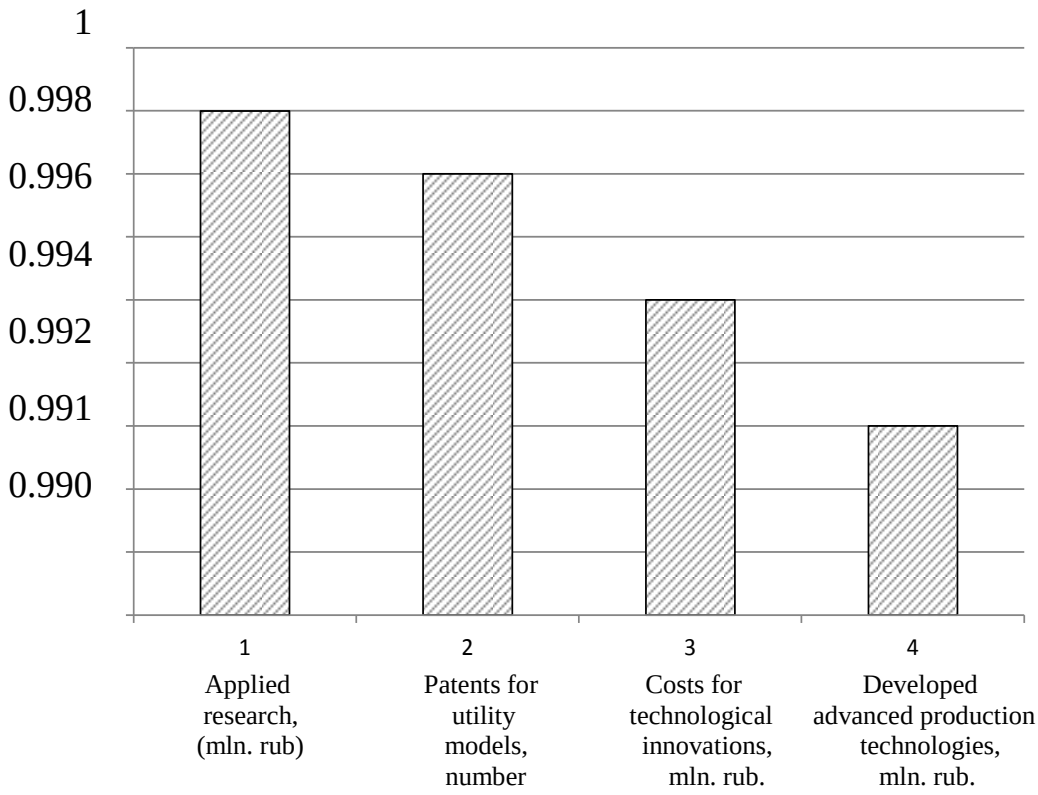


The regions of this group have the highest priority in terms of the feasibility of both public and private investments in the development of their innovative potential. They are the locomotive of the country's innovative development and essentially determine the state of the investment climate in the country as a whole.

The second cluster includes the regions which innovation potential state is at the level corresponding to the average one for Russia. It includes old industrial centers located mostly in the Volga region and Siberia (Perm, Samara, Ulyanovsk and other regions), but those that have partially lost their potential during the nineties.

The emphasis in this group shifts from basic to applied research, including patents, the cost of utility models and developed advanced manufacturing technologies (Figure 8).

Figure 8
THE RATING OF FACTOR DETERMINING THE LEVEL OF GROSS DOMESTIC PRODUCT FOR THE 2ND CLUSTER

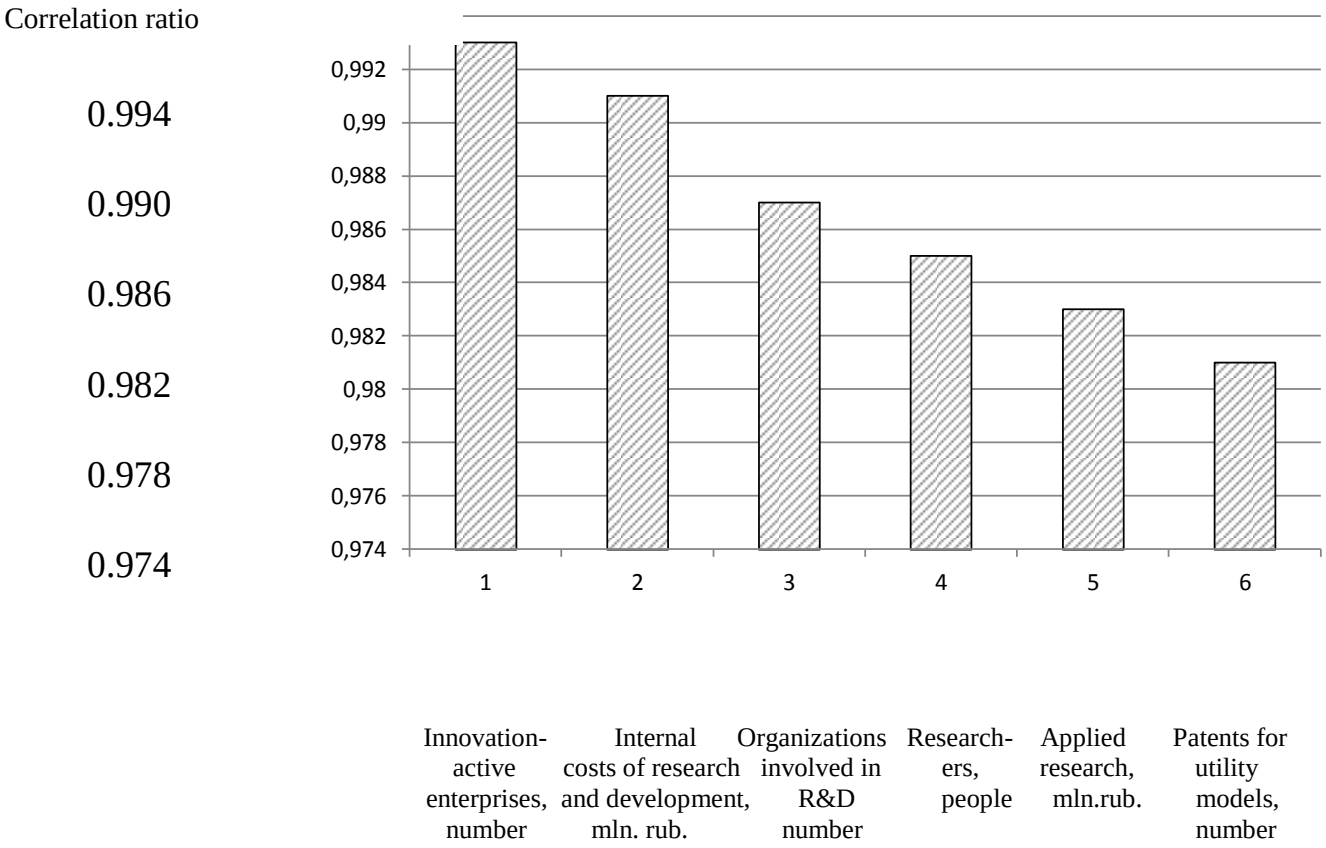


The role of scientific research is also predominating in this group, but its applied and technological aspects are decisive, which is due to the fact that the potential of this innovative

economic growth was mainly formed in the branches of the machine-building complex that produced industrial products for domestic consumption and exports. Thus, the implementation of the innovative potential of the 2nd cluster regions will require considerable financial costs and can be implemented in a longer period.

The third cluster unifies the regions with predominantly mining specialization: Tyumen, Sakhalin regions, the Komi Republic and others. It has a high financial potential for innovative development, on the one hand (Shilova N. N. & Salcheva S., 2015), but also a clear imbalance due to the mono-raw industry specialization (Figure 9), on the other hand.

Figure 9
THE RATING OF FACTORS DETERMINING THE LEVEL OF GROSS DOMESTIC PRODUCT FOR THE 3RD CLUSTER REGIONS

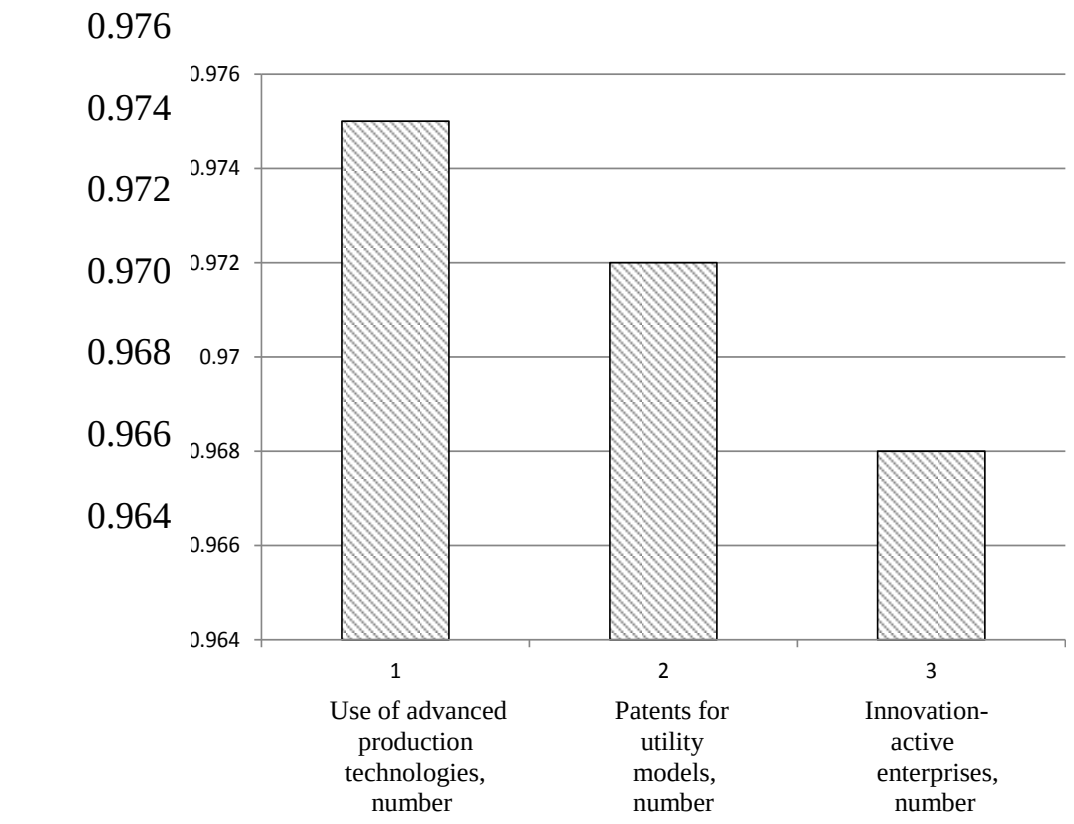


In this group, the role of applied research factors and the number of patents for utility models received is shifted to the 5th and 6th places. Extensive factors reflecting the number of

people employed in research activities are the most important ones: the number of innovation-active enterprises, internal costs of research and development, the number of organizations and people involved in research and development.

The fourth cluster includes regions characterized by the development of innovative potential below the national average. These are mainly the backward regions (the Altai Territory, the Republic of Ingushetia, Kalmykia, etc., Figure 10).

Figure 10
THE RATING OF FACTORS DETERMINING THE LEVEL OF GROSS DOMESTIC PRODUCT FOR THE 4TH CLUSTER REGIONS



In this group, due to technological backwardness, the factors of using advanced production technologies and the use of patents for utility models obtain a special role, as well as a simple increase in the number of innovation-active enterprises, because for some regions, their number is extremely low, and, for example, the number of organizations performing scientific research is even less than 5.

DISCUSSION

Thus, the performed studies allowed to prove empirically the existence of an objectively existing relationship between the GDP volumes and the level of innovative development of a region, as well as to identify the priority factors of regional development in different situations, depending on the degree of their innovative development.

Unfortunately, quite often extensive quantitative indicators do not fully reflect the effect of investing in innovative development. For example, a comparison of the serious intensity of the world innovation processes and its low range in certain regions of Russia allows us to conclude that the use of various resources for the creation of innovative technologies and goods in the Russian Federation is low. As official European statistics shows, the unit of costs for technological innovation in the EU countries accounts for 8.8 units of a technologically new product, and in Russia – for only 1.2 units ("STATISTICS of SCIENCE AND EDUCATION", 2015). Russia is significantly inferior to all European countries, except for Cyprus and Malta, on the number of units of innovation product costs, per unit of innovation costs. In particular, the value of this indicator in Russia is almost 3 times lower than the values of Iceland, and 4.5 times lower than those of Denmark (Kleyner G. B., 2011).

Thus, innovation as an integral feature of entrepreneurship in the Russian reality has not yet been fully developed (Guan J. & Liu S., 2005). This is due to the existing serious shortcomings in the existing economic mechanisms, and first of all, in those aimed at stimulating and ensuring the conditions for the development of innovation activity, due to the same approach to all regions without taking into account the degree of their real innovative development. In the future, the research conducted and the rating of factors will allow developing individual schemes of innovation development for each of the four clusters of regions, depending on the degree of their innovative development. This will allow obtaining the most out of the invested funds, and in particular, the highest level of gross domestic product, which is especially important in the modern conditions, since it is the innovative model of development in the modern economy that is called the priority and even the only possibility for consolidating positions in the conditions of depletion of natural resources and increasing the international competition. (Galan Jose I., & Sanchez Maria J. 2006).

CONCLUSION

The results obtained allowed the authors to form the trends for further research. Firstly, it is necessary to develop specific schemes for innovation development of each region, depending on the cluster in which it is included, taking into account the identified rating of innovation development factors that determine the level of gross domestic product in each particular cluster (Kiselitsa E.P., & Shilova N.N., 2016).

Secondly, recommendations should be developed for each region, regulating the observance of certain ratios of the values of determining factors (increase in the number of innovation-active enterprises, the amount of internal costs for research, use of advanced production technologies, etc), since an unjustified increase in investments in one of the factors can negatively affect the entire result of the activity of a particular region. A methodical

procedure for justifying the forms and procedures of state participation in investment projects of innovation-type processing industries should be developed (Shilova N. N., Salcheva S. S., 2014).

Thirdly, the study of innovation as a social process is closely related to the development of society, the standard of living, and the current institutional system that regulates the trends of development of the economic sectors. The research in the field of innovation activity is more focused on changing the intensity of innovation activity and developing innovative capacity, but should not be limited to them. A special trend - innovation metrics - arose and is actively developing in the Western science. Moreover, the development of research in the field of innovation is very closely related to the improvement of the "innovation" term. In this regard, it is necessary to take into account both the expansion of the "innovation" term itself and the expansion of the number of the involved factors that determine the development of a region.

REFERENCES

Adam B. Jaffe, & Josh Lerner, & Scott Stem.(2005). Innovation Policy and Economy, Volume 5, National Bureau of Economic Research6 The MIT Press, Cambridge, Massachusetts, 2005.

Arora A. and Gambardella A. (2011). «Bridging the Gap». In A. Aurora and A. Gambardella, edc., From Underdogs to Tigers: The Rise and Growth Software Industry in Some Emerging Economies. – Oxford, UK6 Oxford University Press.

Bilbao-Osorio B., & Rodriguez-Pose A. (2004). From R&D to innovation and economic growth in the EU // Growth and Change. 2004. №35(4). 434-455.

Dodgson M. (2000). The management of technological innovation: An international and strategic approach / M. Dodgson. Oxford University Press, 2000. 536 p.

Gabor Bekes Clusters (2008). Science Parks and Regional Development (Strategies and Policies in Hungary). Presentation at UNECT TOS-ICP Geneva 14 February, 2008.

Galan Jose I., & Sanchez Maria J. (2006). Influence of industry R&D intensity on corporate product diversification: interaction effect of free cash flow. Industrial and Corporate Change.

Grasmik K.I. (2010). Regional features of innovative activity in economy of Russia//http://refleader.ru/jgeotrmeryfsyfs.html

Guan J. & Liu S. (2005). Comparing Regional Innovative Capacities of PR China Based on Data Analysis of the National Patents // International Journal of Technology Management. – 2005. – No. 32(3/4). – P. – 225–245.

Hasan I., & Wachtel P. & Zhou M. (2009). Institutional Development, Financial Deepening and Economic Growth: Evidence from China // Journal of Banking and Finance. – 2009. – No. 33(1). – P. 157–170.

Kiselitsa E.P., & Shilova N.N. (2016). Economic technology of enterprise risk management based on in-formation support for their activity.// Journal of internet banking and commerce. Vol.21, Issue S3, April 2016, 14 p.

Kleyner G. B. (2011). Mezoekonomika of development / under the editorship of the member correspondent of the Russian Academy of Sciences G. B. Kleyner. M, 2011. (Economic science of modern Russia).

Lundvall, B. & Ernst, D. (1997). Information Technology in the Learning Economy – Challenges for Developing Countries// DRUID Working Papers.-1997.-N.12.- P.158

Mariyev O. S., & Reshetova Ya. M. & Savin I. V. (2006) Factors of development of innovative system of the Russian regions. Yekaterinburg: Institute of economy UrO RAS, 2006. 62 p.

Percev S.B. (2013). Influence of innovative system on economic growth of the region.//Modern problems of science and education. – 2013. – No. 6.; URL: http://www.science-education.ru/ru/article/view? id=11156

Porter M. E.(2003). The economic performance of regions //Regional Studies. 2003. №37 (6-7). p. 549–578.

The data published on the site of Federal State Statistics Service of the Russian Federation (The state committee on statistics): http://www.gks.ru/

Shilova N. N., & Kiselitsa E.P., & S. A. Lyuft S.A. (2016). Side play of influence of an industrial cluster on region economy Bulletin of the Kamchatka state technical university. 2016. No. 36. Page 108-114.

Shilova N. N., Salcheva S. With the formation of the economic mechanism of realization of investment projects of deep processing of oil with state participation// Scientific and technical journal problems of Economics and management of oil and gas complex September 2015, No. 9, pp. 19-22.

Shilova N. N., Salcheva S. S. Evaluation of the effectiveness of state participation in investment projects for recycling of oil// news of higher educational institutions. Sociology. Economy. Policy. Publisher: Tyumen state oil and gas University (Tyumen) ISSN: 1993-1824 2014. No. 4. S. 18-23.

Solvell O., & Lindqvist G., & Ketels Ch. (2003). The Cluster Initiative Greenbook. The Competitiveness Institute/VINNOVA, Gothenburg, 2003.

The information and statistical material "STATISTICS of SCIENCE AND EDUCATION"(2015). Release 7 "INNOVATIVE ACTIVITY IN the RUSSIAN FEDERATION", ISBN 978-5-89098-057-1, http://www.csrs.ru/archive/stat_2015_inno/innovation_2015.pdf

Volkova N. N., & Romanyuk E.I. (2012). Metodika of rating of regions of Russia on the level of innovative development//Prospect of innovative development of the Russian regions / Otv. edition E.B. Lenchuk. - M.: Institute of economy of the Russian Academy of Sciences, 2012.

PRICING AND ASSESSMENT OF COMPETITIVENESS OF INNOVATIVE MEDICAL DEVICES IN THE CONTEXT OF COMMERCIALIZATION STRATEGY

Tatiana Jurievna Kudryavtseva, St. Petersburg Polytechnic University
Elena Andreevna Ivanova, St. Petersburg Polytechnic University
Evgeniia Alexandrovna Kozlova, St. Petersburg Polytechnic University
Angi Erastievich Skhvediani, St. Petersburg Polytechnic University

ABSTRACT

The purpose of the study is to assess the competitiveness and to define the indifference price of the innovative medical device in order to substantiate its commercialization strategy in the context of import substitution in Russia. Individual methods and elements of the commercialization strategy were tested. They can help determine a reasonable price for the device for a consumer, calculated using the "indifference price" method and taking into account the competitiveness factor by the example of a mobile device for express diagnosis of myocardial infarction biomarkers developed in SPbSETU "LETI". The study revealed the areas of adjustment of technical and consumer characteristics of the device, due to which the competitive position of the device on the market will change. The conclusion was made that the assessment of competitiveness should be carried out at all stages of the development and launch of the device on the market with the purpose of implementation of a successful commercialization strategy.

Keywords: price, competitiveness, import substitution, commercialization, devices for medical use.

INTRODUCTION

At the moment, the Russian Federation is implementing the strategy of innovative development of the economy and import substitution in healthcare. In this context, Russian researchers develop products and technology, including those for medical use, both on the basis of foreign analogues and unique ones, with the degree of completion of developments varying within a wide range – from an idea to a prototype.

Healthcare is the most important area of life support; the results of its functioning shape the quality of life. In 2014, total consumption of medical products in the Russian Federation amounted to 199.6 bln rub., of which 78% fell on the consumption in the public sector. At the same time, only 16.6% (33.2 bln rub.) fell on the medical products of domestic production, while the remaining 83.4% fell on the imported products (STC MEDITEX, 2015). As such, the predominance of imports in consumption and supply of the medical products on the Russian market leads to a dependence of prices for vital devices on the international economic and political situation. In our opinion, this area should remain stable and to a minimal degree depend on changes in the economic and political situation in the world. Achievement of such a state requires targeted shaping of national security in healthcare and ensuring its import independence.

According to the Order of the Ministry of Industry and Trade of the Russian Federation dated January 31, 2013 No. 118 on the approval of the development strategy for the medical industry of the Russian Federation for the period through to 2020, 10% annual growth in the volumes of the medical products market are expected since 2015. As part of the scenario of organic growth, the volume of the market for medical devices will reach 340 bln rub. by 2020. At the same time, the share of domestic medical products in consumption should increase to 40%, the share of exported domestic products should increase to 16.3%, the share of companies implementing technological innovations should increase to 50%, and labor productivity in the medical industry should double the level of 2012.

As such, the efficient solution of the task of import substitution in healthcare requires to ensure the promotion of promising developments from research laboratories into practice and their implementation with minimal cost, as well as to form the resource base for continued research and development of the "research – production – consumption" chain in order to further improve the equipment of healthcare.

However, the "research for research" model is currently being implemented in the Russian economy, when they remain non-demanded on the market after the execution of grants. According to data from NBK Group, the share of commercialized patents has been declining in Russia from 2004 to 2012. In 2012, the figure reached the value of 0.14%, which is 2/3 less than in 1992 (NBK Group, 2013). According to data from HSE, 2,965 internal agreements on trading licenses and alienation of patents were registered in 2014, of which 14.8% fell on the agreements in the area of medical equipment (Gorodnikova, N.V, Gokhberg, L.M., Ditkovskiy, K.A. et al., 2016). According to the federal target program "Development of the pharmaceutical and medical industry of the Russian Federation for the period of 2020 and beyond", the figure "volume of production of modern domestic medical products at the expense of commercialization of the developed technology" reached the target value of $0.8 bln rub. in 2014, was fulfilled by 44.8% and amounted to 1.3 bln rub in 2015. We must note that this figure should rise 41.3 times by 2020 as compared to 2015 and reach 53.7 bln rub. As such, the real growth rate is much lower in 2015 than the target. On the other hand, the academics note that Russian universities should both develop scientific-innovative activity of universities (Rodionov, D. G., Rudskaia, I. A., & Kushneva, O. A., 2014) and address issues of promotion and incorporation into the international academic system (Rodionov, D. G., Fersman, N. G., & Kushneva, O. A., 2016) (Rodionov, D. G., Rudskaia, I. A., & Alexandrovna, K. O., 2014). Consequently, in the absence of changes in the current model of research, the gap between target and actual figures will increase, and research of the domestic scientists will remain non-demanded on the market.

Based on the above, the achievement of the goals presented in the strategy of development of the medical industry through to 2020 requires organizational and industrial mechanism of consolidation of business, state and academic community in the development of the medical industry. This goal can be realized through the development of the complex of methodical support of the implementation and commercialization of domestic innovative devices and technology of medical use, meeting the interests of representatives of the business, government agencies and researchers. This will contribute to the achievement of the strategic goals at the expense of improving the efficiency of selection of promising innovative developments, optimization of the process of their implementation, distribution focused on the complex socio-economic result, and commercialization of innovations.

Issues of evolution of models and processes of development of innovative medical devices are widely discussed in the scientific literature by Wood B. (1996), Rudelius W. (1997),

Alexander K., & Clarkson P. J. (2002), Imelli P. & Kobe C. (2008), Mehta S. S. (2008), Shah S. G. S. & Robinson I. (2008), Panescu D. (2008), Rochford L. & Medina L. A., Kremer G. E. O. & Wysk, R. A. (2013), Santos I. C. (2013), and Philips Plastic Corporation (2013). It was found based on the analysis of papers of these authors that the assessment of the potential of commercialization of innovative devices for medical use must be accompanied by the processes of testing the hypotheses about the demand for design, configuration and consumer-oriented characteristics by the main consumers and users of the device. In particular:

1. At the preparatory stage, when the idea is generated, the overall concept of the device is determined and a project plan created, it is required to: conduct a study of regulatory requirements to the characteristics of the device, compare its hypothetical characteristics with the characteristics of the analogues that exist today, predict their development in the future, define a niche the device will take in the future using the price-quality parameters, which consumer-oriented characteristics will be most in demand on the market;
2. In the process of the device development, it is required to control the correspondence of actual device characteristics to those defined at the preparatory stage, test pilot samples of the device and convert the users and consumers feedback into measures to improve the quality of the device and to bring its characteristics in correspondence to the ones required by the market;
3. At the stage of the creation of the device and its launch on the market, it is required not just to conduct its clinical trials in order to determine its compliance with all necessary regulatory requirements and the final formalization of its characteristics and the effect on a patient, but also to define production specifications, plan and methods of production, supporting processes of marketing, packaging, logistics, etc.

As such, each stage of the device development sets various goals for the team of researchers, the achievement of which is required for a successful launch of the device on the market. As a consequence, the organizational and methodical complex must contain a set of tools adapted to the specific goals and objectives for each stage. In this case, the process of the device creation will be synchronized with both the evolution of market requirements to the characteristics of the device and to the changes in the regulatory and institutional nature, which will increase the chances of its successful commercialization.

The reviewed methodical bases of commercialization of innovative medical devices will be tested on the example of a mobile device for express diagnosis of myocardial infarction biomarkers. The prototype of this device was designed by the research team of the Center of Microtechnology and Diagnosis of the Saint-Petersburg State Electrotechnical University "LETI" named after V.I. Ulyanov-Lenin (hereinafter SPbSETU) within the grant "Development of physical and chemical foundations and creation of the sample of the analytical micro-nanobiosystem for preclinical express identification of myocardial infarction biomarkers" from the Ministry of Education under the federal target program "Scientific and academic human resources of innovative Russia" (Agreement No. 14.V 37.21. 0793 dated September 03, 2012) (Pat. 2280247 of the Russian Federation, MPK7 G01N21/64, G01N21/03) (Luchinin V.V., Zimina T.M., 2013).

As part of this study, the consumer characteristics of the domestic express analyzer of the critical states developed in SPbSETU "LETI" were assessed, the optimal price was defined taking into account the level of its competitiveness, and the optimal device characteristics from the perspective of the consumer were defined.

METHODS

The key goal of the study was to quantitatively assess the competitiveness of the domestic express analyzer of critical conditions, as well as to determine the optimal price for the device, taking into account the calculated level of competitiveness. The "indifference price" method was used to do so, which allows to define the level of price for the product, at which a unit of useful effect of one product and the product of competitors will have the same price. In other words, the price is defined, at which the buyer will have no difference which product to purchase: the product in question or the competing one (Lifits, I.M., 2014).

Assessment of competitiveness and determination of the indifference price is made in several stages:

1) Market analysis, identification of key competitors.

2) Identification of the most important technical and consumer characteristics of the device.

3) Determination of the level of importance of characteristics for the end user as a weight index (index of importance), $k_j \in \{0 \dots 100\}$, expressed as a percentage. The weight index can be calculated as the arithmetical average assigned to the selected technical characteristics using the method of expert assessment. $\sum k_j = 100$.

4) Determination of the product characteristics, optimal for the consumer, in accordance with the wishes and preferences of consumers, i.e. identification of the characteristics of the "ideal" product.

5) Assessment of the degree of correspondence of each parameter of the assessed product to characteristics of the "ideal" product as a percentage: $I_j, j \in \{1, .. m\}$.

6) Calculation of the average parametric index (API) for each device n:

$$API_n = \frac{\sum I_j}{m}, \quad (1)$$

where:

n is a device, for which the calculations are made, $APIn, n \in \{1, \dots, N\}$.

7) Calculation of the average weighted parametric index expressed as a percentage, which reflects the degree of correspondence of each parameter of the assessed product to characteristics of the "ideal" product, taking into account the degree of importance of each characteristic to the consumer:

$$PIn = \sum I_j k_j . \quad (2)$$

8) Determination of the reduced parametric index (RPI_n) of the tested (base) in comparison with the n-th competing device, which provides the comparative assessment of its competitiveness and the comparative value of the product to the consumer. The calculation is made using the following formula:

$$RPIn = \frac{AWPIn}{AWPI0} \times 100, \quad (3)$$

where

AWPI0 is an average weighted parametric index of the base device.

9) Calculation of the markup or discount to the price of the base device (T_n) based on the difference in quality with the n-th competing device:

$$Tn = \frac{100 - RPIn}{RPIn} * 100. \quad (4)$$

10) Calculation of the indifference price for the base device (Q_n) in comparison with the n-th competing device using the following formula:

$$Qn = \frac{100+Tn}{100} * Cn\,, \quad (5)$$

where:

C_n is a price for the competing device.

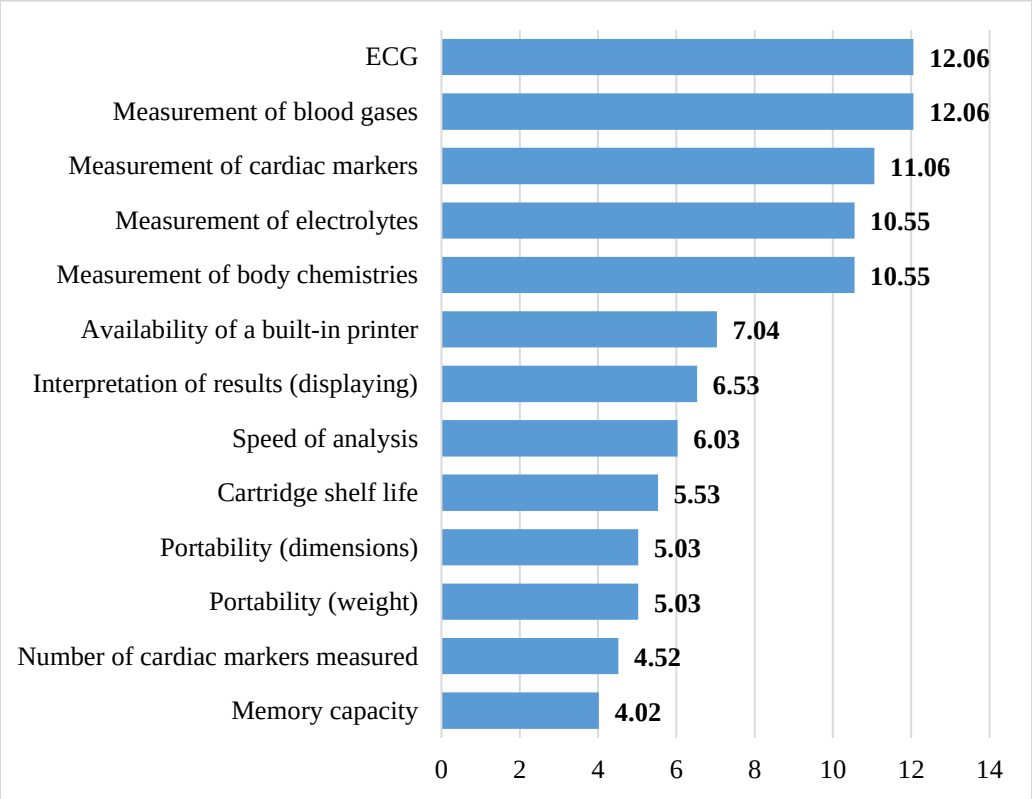
Thus, the "indifference price" method allows to find out whether a product will be competitive on the market, as well as the price for the product, at which the consumer will be ready to buy it, taking into account the quality level of the product compared to its competitors. The price for the product must correspond to the value of the product for the consumer, which means that the price for the product must be set in accordance with the calculated reduced index, which reflects the relative competitiveness of the product. The admissible markup (discount) to the device due to the difference in the quality of the assessed product and its competitors is calculated on the basis of the above index. At such pricing, the position of the assessed product will be the same as those of competitors, and the customers will be indifferent to the purchase of both products.

Use of this method allows to identify the strengths and weaknesses of the product, which can be taken into account when developing a strategy for its promotion and further R&D aimed at development of the innovative products.

RESULTS

The device competitiveness was assessed and the indifference price was defined for a medical device – express analyzer of critical conditions of myocardial infarction biomarkers, designed by the research team of the Center of Microtechnology and Diagnosis of the SPbSETU. The principles of the device operation are detailed in Zimina T. M., & Luchinin V. V. (2011), (Agreement No. 14.B 37.21. 0793 dated September 03, 2012) (Pat. 2280247 of the Russian Federation, MPK7 G01N21/64, G01N2 /03) (Luchinin V.V., Zimina T.M., 2013).

Figure 1
DEGREE OF IMPORTANCE OF THE PARAMETERS OF THE EXPRESS ANALYZER OF CRITICAL CONDITIONS DIAGNOSING AMI FOR THE CONSUMER (AS A PERCENTAGE)



At the first stage, the market for the express analyzers in Russia was analyzed with the purpose to define the key competitors based on regulatory requirements. As a result, it was determined that the express analyzers of critical conditions belong to the means of preclinical diagnosis, the target segment of which are ambulances equipped in accordance with the Order of the Ministry of Healthcare of the Russian Federation dated 01.12.2005 No. 752 "About equipment of medical ambulances." In accordance with the latter, an express analyzer of

Table 1
COMPARATIVE ANALYSIS OF THE EXPRESS ANALYZERS OF CRITICAL CONDITIONS

	Characteristics	*I-STAT 1 model 300 (Abbott, Point-of-Care, USA)*	*Cobas h 232 (Roche, Point-of-Care, USA)*	*LETI development (Point-of-Care, Russia)*
I	***Parameters measured:***			
	Blood gases	+	-	-
	Electrolytes	+	-	-
	Body chemistries	+	-	-
	Cardiac markers:			
	Troponin I	+	+	+
	Creatine kinase-MB	+	+	+
	BNP	+	+	-
	Myoglobin	-	+	+
II	***Shelf life of cartridges/ dipsticks, months***	6 months at a temperature of 2 to 8ºC. Two weeks at a temperature of 18 to 30ºC	6 months at a temperature of +2°C to +8°C. Up to 1 week at a temperature of +15°C to +25°C	12 months at a temperature of 2 to 8ºC
III	***Time required for analysis of cardiac markers***	10 minutes	15 minutes	10 minutes
IV	***Display of information***	LCD display, option to connect to a computer, built-in printer	LCD display, option to connect to a computer, built-in printer	Monitor, on-board computer, no built-in printer designed so far
V	***Dimensions***			
	Dimensions, cm	7.69 x 23.48 x 7.24	27.5 x 10.2 x 5.5	15 x 10 x 20
	Weight, kg	0.65	0.65	0.8
VI	***Customer support in Russia***	well developed across the country	well developed across the country	absent at the moment
VII	***Registration in the Russian Federation***	yes (Registration Certificate FS No. 2006/807 dated 30.05.2006)	yes (Registration Certificate FS 2007/00474 dated 23.10.2007)	absent at the moment
VIII	***Price***	$9,600 + $450 per pack (25 cartridges)	$8,800 + $230 per pack (10 dipsticks)	not on sale at the moment

critical conditions is a must device for resuscitation trolleys and specialized ambulances. The analysis of this order resulted in identification of two competitors to the domestic device: I-STAT 1-300 (Abbott, USA), which is used to equip ambulances, and Cobas h 232 (Roche, USA). The results of the second stage – comparative analysis of express analyzers of critical conditions – are shown in Table 1.

At the fifth stage, the correspondence of devices to consumer demands was assessed, and the average weighted parametric index was calculated at the sixth stage (Table 2).

At the seventh stage, based on the weights assigned to each characteristic of the device, the average weighted parametric index was calculated using formula 4, which reflects the degree of correspondence of the compared devices to consumer preferences (Table 3).

Table 2
CALCULATION OF THE AVERAGE PARAMETRIC INDEX OF EXPRESS ANALYZERS OF CRITICAL CONDITIONS

No.	Specifications	Parameters of the "ideal" device	Development of SPbSETU "LETI" 1 (Point-of-Care, Russia)	I-STAT 1-300 (Abbott, Point-of-Care, USA)	Cobas h 232 (Roche, Point-of-Care, USA)
1	ECG	yes	0.00	0.00	0.00
2	Measurement of blood gases	yes	0.00	100.00	0.00
3	Measurement of cardiac markers	yes	100.00	100.00	100.00
4	Measurement of electrolytes	yes	0.00	100.00	0.00
5	Measurement of body chemistries	yes	0.00	100.00	0.00
6	Availability of a built-in printer	yes	0.00	100.00	100.00
7	Interpretation of results (displaying each parameter)	yes	100.00	100.00	100.00
8	Speed of analysis	10 min.	100.00	66	100.00
9	Cartridge shelf life	12 months	100.00	50.00	50.00
10	Portability (weight)	0,65	77.00	50.00	50.00
11	Portability (dimensions)	7.69 x 23.48 x 7.24	75.00	100.00	70.00
12	Number of cardiac markers measured (myoglobin was added)	3	100.00	90.00	100.00
13	Memory capacity	5000	80.00	100.00	90.00
Total			56.31	81.23	58.46

Thus, the consumer demands are best satisfied by I-STAT 1-300, which by 80% corresponds to the "ideal" representations of the consumer. The domestic express analyzer is currently inferior to its competitors and corresponds to the "ideal" representations of the consumer only by 45%.

Table 3
CALCULATION OF THE AVERAGE WEIGHTED PARAMETRIC INDEX OF EXPRESS ANALYZERS OF CRITICAL CONDITIONS

No.	Specifications	Weighted index,%	Development of SPbSETU "LETI" 1 (Point-of-Care, Russia)	I-STAT 1-300 (Abbott, Point-of-Care, USA)	Cobas h 232 (Roche, Point-of-Care, USA)
1	ECG	12.06	0.00	0.00	0.00
2	Measurement of blood gases	12.06	0.00	12.06	0.00
3	Measurement of cardiac markers	11.06	11.06	11.06	11.06
4	Measurement of electrolytes	10.55	0.00	10.55	0.00
5	Measurement of body chemistries	10.55	0.00	10.55	0.00
6	Availability of a built-in printer	7.04	0.00	7.04	7.04
7	Interpretation of results (displaying each parameter)	6.53	6.53	6.53	6.53
8	Speed of analysis	6.03	6.03	3.98	6.03
9	Cartridge shelf life	5.53	5.53	2.76	2.76
10	Portability (weight)	5.03	3.87	2.51	2.51
11	Portability (dimensions)	5.03	3.77	5.03	3.52
12	Number of cardiac markers measured (myoglobin was added)	4.52	4.52	4.07	4.52
13	Memory capacity	4.02	3.22	4.02	3.62
Total		100.00	44.52	80.16	47.59

At the eighth stage, the reduced parametric indexes of the domestic express analyzer were calculated in comparison with two competitors; discounts to competitors' prices were calculated at the ninth stage; the indifference prices were determined according to the level of its competitiveness at the last stage (Table 4).

Comparison of the domestic device with the competitors allowed to determine that the quality of characteristics of the device I-STAT 1-300 are higher than that of the domestic express analyzer by 44.46%, while the indifference price for the device developed at SPbSETU "LETI" may amount to 433,220 rub. with respect to the I-STAT 1-300.

The study resulted in a conclusion that the project of the domestic express analyzer does not fully correspond to consumer preferences at the moment due to the lack of three groups of measured parameters which the specialists require in their daily work (see Table 1), as well as a built-in

printer to print out the results to attach to the case-record (Kozlova E.A., Kudryavtseva T.Yu. 2016). As such, the decision was made to improve the device, taking into account the market demands on the following parameters: availability of a built-in printer, possibility of measuring ECG and general clinical minimum.

Table 4
CALCULATION OF THE INDIFFERENCE PRICE FOR THE EXPRESS ANALYZER OF THE FIRST GENERATION

Indicator	I-STAT 1-300 (Abbott, Point-of-Care, USA)	Cobas h 232 (Roche, Point-of-Care, USA)
Market prices of competitors, thous. rub.	780	610
Discount to the price of the analyzed device based on difference in quality,%	-44.46	-6.44
Indifference prices in relation to competing products, thous. rub.	433	571

Repeated calculations were made when comparing the improved device – let it be the device of the second generation – with the competitors. It was determined that the quality of I-STAT 1-300 is higher than that of the domestic express analyzer by 7.47%, while the quality of Cobas h 232 is inferior to the analyzed device by 55.86%. Accordingly, the price for the domestic express analyzer with respect to the I-STAT 1-300 may amount to 721,720 rub. (Table 5). Upon the improvement of the device in accordance with the market demands, its position will improve with respect to competing products, and the price will rise accordingly.

Table 5
CALCULATION OF THE INDIFFERENCE PRICE FOR THE EXPRESS ANALYZER OF THE SECOND GENERATION

Indicator	I-STAT 1-300 (Abbott, Point-of-Care, USA)	Cobas h 232 (Roche, Point-of-Care, USA)
Market prices of competitors, thous. rub.	780	610
Discount to the price of the analyzed device based on difference in quality,%	-7.47	55.86
Indifference prices in relation to competing products, thous. rub.	722	951

DISCUSSION

The analysis of the market for express analyzers of critical conditions diagnosing AMI and comparisons of consumer characteristics of the analogues of the device developed by researchers at the SPbSETU "LETI" that exist on the market allowed to reveal that it was inferior to competitors by a number of factors at the moment. The key areas of improvements are the expansion of the measured parameters with the ability to analyze the general clinical minimum, integration of a built-in printer and an electrocardiograph, which will be an innovative component of the device that will allow to carry out a comprehensive diagnosis of AMI. As such, the optimal price for the development of the domestic express analyzer of the first and the second – modified – generation of the device was calculated to make the device much-in-demand for consumers, taking into account the calculated competitiveness ratio. The difference in the price for two generations of the device is determined by a different set of consumer characteristics: in particular, the indifference price for the domestic express analyzer of the first generation is from 433 thous. rub. to 571 thous. rub., for the device of the second generation – from 722 thous. rub. to 951 thous. rub.

The conducted study allowed to test the hypotheses of the researchers concerning the correspondence of the designed characteristics of the device to the key demand parameters. The reduced indifference prices are guidelines for determining the future price of the device. Theoretically, it should be not higher than the values obtained for each configuration. Otherwise, the device will be uncompetitive by the price parameter to foreign counterparts.

It should be noted that the optimal market price for the express analyzer under development must be calculated at all stages of the device development, because technical and consumer characteristics of the device, as well as its manufacturing technology, can be adjusted at any stage of development, resulting in the change of its competitive position on the market and, accordingly, the price of the device requires an adjustment in accordance with the new data.

CONCLUSION

As such, this study presents the results of testing the individual elements of the organizational and methodical complex under development, which are associated with the assessment of the competitiveness of medical diagnostic devices. The obtained results and recommendations allowed the researchers to obtain information about the key areas of improvement of the device and the demand parameters required to enter the creation stage. Besides, the work on the informational and methodological support of the process of commercialization of the device for express diagnosis of disease biomarkers allowed us to obtain a practical result of the use of the organizational and methodical complex and to implement the processes of development and tool testing at the same time. The qualitative component of the process of developing the tools for commercialization of innovative devices was improved thanks to the principle of continuous learning and obtaining relevant information from the key stakeholders.

Further research involves developing the conceptual provisions and methods based on them, which will allow to assess the potential of introduction and commercialization of innovative diagnostic medical devices, and to effectively manage the introduction and commercialization in the case of a positive forecast. This complex will largely base on foreign research and development in order to support the process of integration as part of the topic of the domestic academic and practical fields under study into the international one, as well as

implementation of the import process and adaptation of the best developments to Russian conditions.

ACKNOWLEDGEMENTS

The article is prepared with the support of the Ministry of Science and Education of the Russian Federation (project No. 26.6446.2017/БЧ).

REFERENCES

Alexander, K. and P.J. Clarkson, (2002)A Validation Model for the Medical Devices Industry. Journal of Engineering Design, 13(3): 197-204.

Imelli, P & C. Kobe, (2008) Guidelines for the Project Initialization Phase of Medical Device Development. Zurich: Autonomous System Lab, pp: 25.

Rochford, L & W. Rudelius, (1997) New Product Development Process: Stages and Successes in the Medical Products Industry. Industrial Marketing Management, 26(1): 67-84.

Medina, L. A, G.E.O. Kremer and R.A. Wysk, 2013. Supporting Medical Device Development: a Standard Product Design Process Model. Journal of Engineering Design, 24(2): 83-119.

Mehta, S.S, (2008) Commercializing Successful Biomedical Technologies: Basic Principles for the Development of Drugs, Diagnostics and Devices. Cambridge University Press, pp: 335.

Panescu, D, (2008). Medical Device Development. In Conference Proceedings:... Annual International Conference of the IEEE Engineering in Medicine and Biology Society. IEEE Engineering in Medicine and Biology Society. Annual Conference, 2009: 5591-5594.

Santos, I.C, (2013) Product Development Methodologies: the Case of Medical Devices. Doctoral Dissertation, Universidade do Porto.

Shah, S. G. S. and I. Robinson, (2008) Medical Device Technologies: Who is the User? International Journal of Healthcare Technology and Management, 9(2): 181-197.

Wood, B., (1996) Characterizing Medical Device Development. Northcon/96, November: 254-259.

Philips Plastic Corporation, How to Maximize Speed and Efficiency of Medical Product Development During Pilot Phases and Clinical Trials. Philips Plastic Corporation. Date Views20.05.2016 www.phillipsplastics.com/sites/default/files/whitepaper/WhitePaper_Medical.pdf, last access 11-10-2013.

Rodionov, D. G., N.G. Fersman and O.A. Kushneva, (2016) Russian Universities: Towards Ambitious Goals. International Journal of Environmental and Science Education, 11(8): 2207-2222.

Rodionov, D.G., I.A. Rudskaia and O.A. Kushneva,(2014). The Importance of the University World Rankings in the Context of Globalization. Life Science Journal, 11(10): 442-446.

Rodionov, D. G, I.A. Rudskaia and K.O. Alexandrovna, (2014). How Key Russian Universities Advance to Become Leaders of Worldwide Education: Problem Analysis and Solving. World Applied Sciences Journal, 31(6): 1082-1089.

Zimina, T.M. and V.V. Luchinin, (2011) Microsystems for Express Analysis. Journal of Analytical Chemistry, 66(12): 1136-1158.

Gorodnikova, N.V, L.M. Gokhberg, K.A. Ditkovskiy et al, (2016). Indikatory nauki [Indicators of Science]: 2016. Statistical Yearbook. National Research University "Higher School of Economics", pp: 304.

NTTS “MEDITEKS” podvel itogi razvitiya rynka meditsinskikh izdeliy v 2014 godu [RDC "MEDITEKS" Summarized the Development of the Market for Medical Products in 2014]. Remedium. Date Views 20.11.2015 www.remedium.ru/news/relis/detail.php?ID=64791.

Order dated January 31, 2013 No. 118 "Ob utverzhdenii strategii razvitiya meditsinskoy promyshlennosti rossiyskoy federatsii na period do 2020 goda [About Approval of the Strategy of Development of Medical Industry of the Russian Federation for the Period through to 2020]. Date Views 14.06.2016 www.consultant.ru/document/cons_doc_LAW_145833.

Federal Target Program "Razvitiye farmatsevticheskoy i meditsinskoy promyshlennosti Rossiyskoy Federatsii na period do 2020 goda i dalneyshuyu perspektivu [Development of the Pharmaceutical and Medical Industry of the Russian Federation for the Period through to 2020 and Further Prospects] (Approved by the Decree of the Government of the Russian Federation dated February 17, 2011 No. 91).

Zimina, T.M. and V.V. Luchinin. Russian Federation Patent 2280247, MPK7 G01N21/64, G01N21/03. Biochip dlya flyuorestsentnogo i lyuminestsentnogo analiza [Bio-chip for Fluorescent and Luminescent Analysis].

Luchinin, V.V & T.M. Zimina, 2013. Reasearch and Technical Report "Razrabotka fiziko-khimicheskikh osnov i sozdaniye obraztsa analiticheskoy mikro-nanobiosistemy dlya doklinicheskoy ekspress identifikatsii biomarkerov OIM (etap 2, itogovyy) [Development of Physicochemical Bases and Creation of the Sample of the Analytical Micro-Nanobiosystem for Preclinical Express Identification of AMI biomarkers (step 2, final)]. Saint - Petersburg: SPbSETU "LETI", pp: 10-14 p .

Lifits, I.M, 2014. Formirovaniye i otsenka konkurentosposobnosti tovarov i uslug [Formation and Assessment of Competitiveness of Goods and Services]. Moscow: Uright, pp: 448.

Order of the Ministry of Healthcare of the Russian Federation dated 01.12.2005 No. 752 (as amended on 31.03.2008) "About Equipment of Medical Ambulances". Date Views 14.06.2016 www.consultant.ru/document/cons_doc_LAW_127068.

Kozlova, E.A & T.Yu. Kudryavtsev, 2016. Analiz perspektiv kommertsializatsii i importozameshcheniya meditsinskoy produktsii [Analysis of the prospects of commercialization and import substitution of medical products]. New Economic Reality, Cluster Initiatives and Industry Development (INPROM-2016): proceedings of the international research-to-practice conference on May 19-26, 2016. Saint-Petersburg State Polytechnic University: 359-366.

NBK Group, Patentnaya aktivnost: Rossiya vs CSHA: analiticheskoye issledovaniye iz tsikla "Indikatory innovatsionnogo razvitiya rossiyskoy ekonomiki" [Patent Activity: Russia vs USA: Analytical Research of the Series "Indicators of Innovative Development of the Russian Economy"], 2013. Moscow: NBK Group, pp: 12.

CRITERIA BASIS FOR CHOOSING THE PREFERRED STRATEGY OF THE ENTERPRISE DEVELOPMENT

Olga Viktorovna Lenkova, Industrial University of Tyumen

ABSTRACT

The goal of this article is to develop methodological tools that would allow to choose the most acceptable option of the strategic development of the company from several alternatives guided by formalized criteria. For this purpose, the following tasks have been set and solved successively in the paper: a review of existing general theoretical tools for choosing from the strategic alternatives has been provided, the need for formalization of the selection procedure has been proved, the possibility of correlation between the company's targets and criteria for choosing the strategy has been shown, the set of criteria for choosing the corporate strategies has been proposed, the calculations based on the data of a specific petrochemical holding have been presented. The possibility of using multicriteria optimization methods for solving the indicated problem is shown in this paper. For this purpose, a target model has been formed, the choice of the model form and the criteria for inclusion in it have been justified, and it has been tested.

Key words: multicriteria, choice, strategy, option

INTRODUCTION

There is a fairly wide range of tools that allow to justify the preferred vector of the strategic development of the company at various levels of the management hierarchy at the moment. In most cases, a detailed strategic analysis of the internal and external environment precedes the solution of such provisional issues, the selection of the preferred option of the basic corporate strategy of the enterprise (SWOT analysis, SPASE matrix, Thompson-Strickland matrix, etc.) is being usually based on its results. A portfolio strategy is also being developed at the corporate level; there are many methods of portfolio analysis for its development in the theory of strategic management (BCG, McKinsey, ADL, etc.). These portfolio tools can be easily transformed taking into account the specifics of the activity of the economic entity under analysis, its place in the general management hierarchy, etc. A synopsis of the existing methodological possibilities of justifying an option of the competitive strategy (M. Porter matrix, building a competitive profile, SPASE matrix, etc.) can be implemented in a similar manner. However, these tools are of general theoretical (methodological) nature and are intended primarily for the implementation of the analytical function of strategic management, while the decisions on the choice of the vector of the further development of the company are normally taken by expertise at strategic sessions. At the same time, despite their ease of use and high decision-making speed, expert evaluations have a significant drawback which is a high degree of subjectivity. Formalization of separate stages of strategic choice can be recommended to reduce it, which will be discussed in this paper.

METHODS

As already mentioned, the methodological approaches specified in the introduction allow forming a set of options (alternatives) of the strategy of the company development, where the choice of preferred one is a rather difficult task. From the position of the authors' logic, the solution to this problem should initially be based on the general concept of strategic management, with one of the fundamental postulates of which being proposed to consider the understanding of the definition of the "strategy" as "... a means of achieving the targets of the firm...". In this regard, it is feasible to determine the preferableness of a particular option from the standpoint of its greatest contribution to achieving the targets set at the initial stages of the strategy development. At the same time, it should be noted that the company can have a large number of strategic targets. Confrontation between some of them can be often observed. Besides, different targets may have different significance for the company at a particular stage (in particular market conditions) of its development. It is proposed to consider the structuring of targets in terms of the levels of decision-making in the organization – substantial, corporate, competitive and functional in order to solve this task.

In this case, as follows from one of the SMART principles, each goal must be specific, i.e. be largely described in quantitative figures. Qualitative targets are the exceptions. However, as the practice of target setting shows, most qualitative targets can be quantified, i.e. they can be described by a set of quantitative parameters through competent decomposition.

Regarding the strategic targets, the following multipurpose hierarchy of targets for commercial organizations can be proposed. It is recommended to set a master target to maximize the company's market value at the general corporate level. Alternatively, there can be an indicator reflecting the difference between the book value and the market (efficient) value of the business. This choice is determined by the fact that the cost indicators of the enterprise, unlike the traditional profitability indicators (profit, cash flow, etc.), allow to provide for a necessary time horizon of planning to be formulated in the development of the strategy and are more complex. Moreover, as practice shows, the use of such indicators in the target setting can help owners to solve the agency conflict by using them as key indicators for the formation of a motivation system for hired managers.

If the company under study is multiprofile or multimarket, it is also necessary to ensure the balance of the product-market portfolio at the corporate level, along with ensuring the growth (maintaining) of the value of the organization. There is a lot of information about the need to ensure the balance of the corporate portfolio in various sources, but it is difficult to find a formalized approach that would allow to evaluate it using specific parameters. If, according to the authors' logic, understanding of the balance is approached from the standpoint of filling the portfolio with strategic business units (SBU) located at different stages of their life cycle, then it is proposed to measure the degree of balance of the corporate portfolio (BCP) as follows:

$$\tilde{N}_{\ddot{I}\ddot{I}} = R_{\hat{a}}^{\ddot{I}\tilde{D}} * q * d, \quad (1)$$

where $R_{\hat{e}}^{PR}$ is profitability of SBU in the corporate portfolio;
q is market growth rate;
d is share of SBU in the corporate portfolio

This indicator is calculated based on the concept of the life cycle of the product/company, which is fundamental in the construction of almost any portfolio matrix – in particular, in this case, the balance was calculated based on the basic portfolio tool – the matrix of the Boston Consulting Group (BCG). The indicator can be complicated if more sophisticated portfolio tools are considered as a methodological basis for its definition. However, the subject matter of the proposed approach to the formalization of this qualitative "balance" criterion will not change in this case.

The key competitive target of the company can be formulated in a general way as the need to increase the level of competitiveness or the status of the organization in comparison with competitors. This complex indicator can also be calculated using various methods. In particular, in case of relying on building a competitive profile of the company, the technology for determining the specified indicator will include several computational and analytical steps. For example, it is initially recommended to carry out a comparative evaluation of the company with the strongest (closest) competitors by a certain set of indicators, which may include the following:

1. Sales volumes for target products (market share).
2. Prices for main products.
3. Level of the service provided to the buyer.
4. Number of assortment groups.
5. Company image.
6. Other

The resulting estimates that have different units of measurement should be subjected to the normalization procedure, and then the value of the resulting competitiveness indicator should be found, either by simple summation of the obtained data, or by weighing these estimates.

Regarding the functional targets, it must be noted that the specifics of their formulation are largely determined by the role of the functional level in the strategic planning system, and in particular by the fact that it is a transitional link in the sequence "strategy development – strategy implementation". Taking into account that the strategy is normally developed "downwards", it is indisputable that the weight of the targets of this level in the general management model by targets will be relatively small. At the same time, in the context of a large number of functional areas within a single company, and hence a significant number of corresponding targets, only the most important ones should be included in the general model of choosing the options of the organization development in order to avoid its excessive overload.

The significance of functional targets can be determined at the stage of strategic analysis of the internal environment, in particular at the stage of constructing a diagnostic model and determining the weight of the parameters of a functional unit. For example, for organizations whose production process is described by high labor intensity, the productivity (efficiency) of labor can serve as the key indicator for formulating the functional target. It is always important for nearly all the organizations to set financial targets, which at the functional level are usually formulated in terms of sufficiency of proprietary financial resources. The indicators of the prime cost of the target products can also be included in the model, which describe the efficiency of the functional departments and units from the standpoint of the resource approach. However, this indicator should be included in such models very carefully, since the issue of its level in the general administrative hierarchy is controversial. Reducing costs can be a general corporate target, reducing costs relative to competitors can be a competitive target, cost optimization in terms of functional areas can be a functional target, respectively.

Following the study, it makes sense to suggest that the issue of choosing a strategy based on the comparison of alternatives on the principle of the best contribution to the implementation of the above multilevel targets can be solved through the use of multicriteria optimization tools. In this case, it is feasible to form the list of criteria from the indicators used in target setting. In the implementation of this approach in order to choose the most preferable option of the strategy, it is expedient to set the objective function F, which can present the following correspondence:

$$\mathrm{F}(\mathrm{V}_b, B_{pp}, C, N_f, PC) \to \max, \quad (2)$$

where *Vb* is the value of the business;
Bpp is the balance of the product portfolio;
C is the comprehensive indicator of the competitiveness of the organization;
Nf is the need for additional funding;
PC is the prime cost of the target products.

According to the theory of managerial decision-making, two types of models can be used to build an objective function: additive and multiplicative. From the author's point of view, the choice of the form of dependence of the target indicator on the complex of the parameters, which describe it, does not have fundamental importance for this study. Besides, it seems that the choice of the model should not have any impact on the final result. An example of building an additive model using the target criteria justified above is given below:

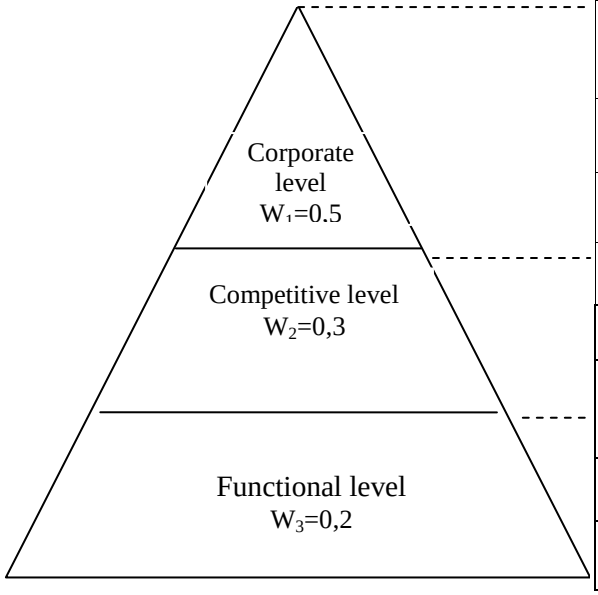
$$F = W_1\left[w_{V_b} * V_b + w_{B_{pp}} * B_{pp}\right] + W_2\left[w_C * C\right] + W_3\left[-w_{N_f} * N_f - w_{PC} * PC\right] \to \max, \quad (3)$$

where w are specific weights of the relevant criteria,
W_1, W_2, W_3 is weight (importance) of the relevant level of strategic decisions.

The advantage of using the additive model is that it allows not only to operate with quantitative and qualitative indicators, but also to take into account their direction. The indicators (criteria), which must grow (tend to maximum) to ensure the achievement of the target, are put into the model with a "plus" sign, while the ones that tend to minimum are put in the model with a "minus" sign. For example, in our case, model 3 with a negative sign will include criteria such as "need for additional funding" and "prime cost of the target products", while the remaining criteria will be put in the calculation with a "plus" sign.

It is noteworthy that in this situation, the model allows to take into consideration not only the nature of the influence of the parameter on the objective function (positive or negative), but also the weight (significance) of each indicator for achievement of the target. At the same time, the specific weight of each criterion in the model can be found in different ways – for example, by their ranking depending on the level of their corresponding goals in the corporate managerial hierarchy (Figure 1)

Figure 1
EXAMPLE OF DETERMINING THE SIGNIFICANCE (WEIGHT) OF THE CRITERIA



Criterion	*Rank*	*Weight*
Market value of the business	2	2/3 = **0.67**
Balance of the corporate portfolio	1	1/3 = **0.33**
Sum of the ranks	3	
Company competitiveness	1	1/1 = 1
Sum of the ranks	1	
Need for additional funding	2	2/3 = **0.67**
Prime cost of the target products	1	1/3 = **0.33**
Sum of the ranks	3	

RESULTS

The proposed approach was tested by the example of the data of a petrochemical holding company that is part of a large Russian vertical oil and gas corporation. The key direction of the company's further development – growth – was identified after conducting a detailed strategic analysis of the internal and external environment of this holding. A more detailed study of the options of development allowed to focus on three key alternatives:

1. Increasing the depth of natural gas liquids (NGL) processing through introduction of a new gas separation technology (strategy of intensive growth);
2. Increasing volumes of NGL processing through the increase in production capacity (strategy of extensive growth);
3. Direct integration as creation of an alliance with Polymer LLC (strategy of vertical integration).

It is obvious that it is quite difficult to choose one of the presented options. Each of the options assumes significant funding, a long implementation time and a high risk of loss in case of the wrong choice. The criteria listed above were calculated in order to make a choice (Table 1). It must be noted that the use of the forecast data in calculations is the most valuable part of this method; their receipt is also of a probabilistic nature and requires significant preliminary analytical work.

As these tables show, following the results of application of the above model, the most preferred option of the development of a petrochemical enterprise is the one that assumes increasing the volumes of processing of NGL through increase in the production capacity. At the

same time, it must be noted that this alternative was found the best without taking into consideration the significance of the criteria included in the model. The choice could radically change with a serious difference in the criteria weights.

Table 1
RESULTS OF MULTICRITERIA OPTIMIZATION

Basic strategy option	Criterion					F
	Value of the business ↑ V_B	Balance of the product portfolio ↑ B_{PP}	Competitiveness of the enterprise ↑ C	Need for additional funding ↓ N_F	Prime cost of the target products ↓ PC	
1	2	3	4	5	6	7
Increasing the depth of NGL processing through introduction of a new gas separation technology (strategy of intensive growth)	Score - 1 Normalized value = 1/1=1	-1	0.14	-1;	-1	0.41
Increasing the volumes of NGL processing through the increase in production capacity (strategy of extensive growth)	Score – 0.4 Normalized value = 0.4/1=0.4	0	1	-0.2	-0.1	0.47
Direct integration as creation of an alliance with Polymer LLC (strategy of vertical integration)	Score – 0,1 Normalized value = 0.1/1 = 0.1	-0.25	0	+1	0	0.16

It must also be noted that this approach does not exclude the possibility of forming a combined strategy, because the compared options do not contradict but rather complement each other, to some extent. In this case, the model can be useful for determining the sequence and timing of the start of implementation of each option within a comprehensive strategy.

DISCUSSION

There are several schools of strategic management at the present stage of development of the theory of strategic management, where various approaches to the formation and selection of preferred alternatives of the implementation of strategic decisions are specified. Classical theoretical and methodological tools of strategic analysis and management are taken as a basis in the development of scientific thought in this paper (Ackoff, 1981; Albert, 1983; Ansoff, 1979; Drucker, 1974; Thompson, 1998). Assumed that the choice of the preferred strategic alternative is a managerial decision implemented at the top level of management in companies, various methods of developing and making decisions are considered (Plenkina, 2009; Kuzin, 2001; Zak, 2013; Nogin, 2008; Keeney, 1981). Application of multi-criteria optimization methods was substantiated as a basic approach (Marler, 2004; Mustakerov, 2012; Reznichenko, 1991; Steuer, 1992; Lyaskovsky, 2007; Biryukov, 2001; Zak, 2014; Lotov; 2008; Yarygin, 2013; Berezovsky, 1986). A comprehensive approach to the solution of the above problem was proposed, based on the consolidation of approaches from strategic management and the theory of managerial

decision-making. This approach will contribute to increasing the degree of objectivity in the choice of strategic alternatives. In this case, use of expert evaluations cannot be ruled out, which are very popular in conducting strategic sessions in organizations. However, the efficiency of decision-making is expected to increase with the preliminary preparation and use of this approach.

CONCLUSION

It must be noted in the conclusion that the goal of the study outlined in the introduction has been achieved. The paper offers the author's approach to selecting the most preferred option of strategic development of the company taking into consideration various targets. A methodical approach is identified in this study, based on the conceptual vision of the process of strategic planning and providing for the formation of a set of evaluation criteria of choosing a strategy based on the results of the target setting. It must be noted that the suggested set of criteria is multipurpose in nature, since the consideration of the level of making the relevant strategic decisions is proposed as the basis for its formation. However, it can be easily transformed, just like the procedure for calculating individual criteria in its composition. For example, in the continuation of the study, it seems reasonable to consider not only the product segment of the corporate portfolio, but also the market one, in order to evaluate its balance. It is also feasible not to take a simplified BCG model as a basis, but rather the improved ones, providing for the complex criteria built on the basis of the analysis of the stage of the product life cycle, the market, the industry, and the prospects for their further development, etc. It is also proposed to adapt the approach presented in the article to strategic decision-making at the level of development of the competitive (business) strategy. In particular, an adjustment of the set of evaluation criteria will be required.

REFERENCES

Ackoff R. L. Creating the Corporate Future : Plan or Be Planned for. - New York: John Wiley & Sons, 1981.- 279.

Albert K. K. The Strategic Management Handbook. - New York: McGraw-Hill, 1983.

Ansoff I. H. Strategic Management. - New York: Wiley, 1979.

Drucker P. F. Management:Tasks, Responsibilities, Practices. - New York: Harper & Row, 1974.- 839.

Marler and J.S. Arora. Survey of multi-objective optimization methods for engineering. Structural and Multidisciplinary Optimization, vol. 6, no. 26, 2004, pp. 369–395.

Mustakerov I, Borissova D., Bantutov E. Multiple-choice decision making by multicriteria combinatorial optimization // AMO - Advanced Modeling and Optimization, Volume 14, Number 3, 2012, pp. 729-737

Berezovsky B.A., Baryshnikov Yu.M., Borzenko V.I., Kepner L.M. Mnogokriterialnaya optimizatsiya. Matematicheskiye aspekty [Multicriteria optimization. Mathematical aspects]. – M.: Science, 1986. – 128 p.

Biryukov A.N. Multiplikativno-additivnaya svertka chastnykh kriteriyev-agregatov dlya otsenki effektivnosti raboty uchrezhdeniy zdravookhraneniya [Multiplicative-additive convolution of partial criteria-aggregates for evaluation of the efficiency of health care institutions] // Administration of economic systems. – No. 4. – 2010 URL: http://www.uecs.ru/logistika/item/275-2011-03-25-06-56-54 (access date 11.12.14)

Zak Yu.A. Prikladnyye zadachi mnogokriterialnoy optimizatsii [Applied problems of multicriteria optimization]. – M.: Economics, 2014

Zak Yu.A. Prinyatiye resheniy v usloviyakh nechetkikh i razmytykh dannykh: Fuzzy-tekhnologii [Decision-making in the context of fuzzy and diffused data: Fuzzy technology]. – M.: Book house "LIBROKOM", 2013. – 352 p.

Keeney R.L., Raifa H. Prinyatiye resheniy pri mnogikh kriteriyakh: predpochteniya i zameshcheniya [Decisions with Multiple Objectives: Preferences and Value Tradeoffs]: Transl. from English/Ed. by I.F. Shakhnov. – M.: Radio and communication, 1981

Kuzin B.I., Yuryev V.N., Shakhdinarov G.M. Metody i modeli upravleniya firmoy [Methods and models of administration of the firm]. – SPb: Peter, 2001

Lotov A.V., Pospelova I.I. Mnogokriterialnyye zadachi prinyatiya resheniy [Multicriteria tasks of decision-making]: Study guide. – M.: MAX Press, 2008. –197 p.

Lyaskovsky A.V. Mnogokriterialnoye upravleniye marketingovoy deyatelnostyu organizatsii [Multicriteria management of marketing activities of the organization]. [Electronic resource]: Publishing house Education and Science s.r.o. URL: http://www.rusnauka.com/20_PRNiT_2007/Economics/23721.doc.htm (acces date 20.12.14)

Nogin V.D. Prinyatiye resheniy v mnogokriterialnoy srede: kolichestvennyy podkhod [Decision-making in a multicriteria environment: quantitative approach]. – 2nd ed., revised and enlarged – M.: FIZMATLIT, 2004. –176 p.

Plenkina V.V, Andronova I.V., Osinovskaya I.V. Upravlencheskiye resheniya [Managerial decisions]. – Tyumen: TyuSOGU, 2009. – 160 p.

Reznichenko S.S, Podolsky M.P, Ashikhmin A.A. Ekonomiko-matematicheskiye metody i modelirovaniye v planirovanii i upravlenii gornym proizvodstvom [Economic-mathematical methods and modeling in planning and administration of mining production]: Textbook for high schools. – M.: Nedra, 1991. – 429 p.

Thompson A.A., Strickland A.J. Strategicheskiy menedzhment. Iskusstvo razrabotki i realizatsii strategii [Strategic Management. Crafting & Executing Strategy]. – M: Banks and stock exchanges, UNITY, 1998. – 579 p.

Steuer R. Mnogokriterialnaya optimizatsiya. Teoriya, raschet i prilozheniya [Multiple Criteria Optimization: Theory, Computation, and Application]. Trans. from Eng.: M.: Radio and communication, 1992. – 504 p.

Yarygin A.N., Kolacheva N.V., Palferova S.Sh. Metody nakhozhdeniya optimalnogo resheniya ekonomicheskikh zadach mnogokriterialnoy optimizatsii [Methods of finding the best solution to economic problems of multicriteria optimization]. – 2013, URL: http://edu.tltsu.ru/sites/sites_content/site1238/html/media90388/86Yarygin.pdf (access date 15.12.14)

PRIORITY AREAS OF DEVELOPMENT OF THE LABOR POTENTIAL OF RURAL TERRITORIES IN RUSSIA

Farida Islamudinovna Mirzabalaeva,Plekhanov Russian University of Economics
Olga Viktorovna Zabelina,Plekhanov Russian University of Economics
Igor Alexeevich Shichkin, Plekhanov Russian University of Economics
Patimat Ruslanovna Alieva,Dagestan State University

ABSTRACT

Labor potential becomes one of the key factors of economic growth in the current conditions in Russia. Russian rural territories experience a systemic crisis, which results in deteriorating demographic situation, rising poverty and unemployment, migration outflow of youth, deteriorating social infrastructure, etc. Having predicted the development of the core indicators of agricultural development, the authors came to a conclusion that there is a significant potential for further development of labor potential. The authors justified the priority areas of development of the labor potential of the population in this article (maintaining and strengthening the health of the rural population, ensuring an adequate standard of living for the rural population, stimulating entrepreneurial activity and self-employment, raising the educational and professional level of the rural population, motivating interterritorial mobility), the implementation of which will allow to give a new impetus to the development of the agrarian field and to increase employment in the economy of agriculture.

KEY WORDS: development of the labor potential, population of agricultural territories, rural employment, agrarian unemployment, migration.

INTRODUCTION

The prevailing part of the territory of Russia is rural areas, which are home to almost a third of the country's citizens. These areas, with their solid natural, demographic, economic, historical and cultural potential, are able to make a greater contribution to addressing the problems of economic growth and social development of the country. However, steady stagnation of rural areas has been seen over recent years. The authors have set the task in this article to define the factors determining the development of the agrarian labor potential, provide a forecast of the core indicators of rural employment and justify the key areas of development of the labor potential.

According to the authors, building the labor potential of the population of rural areas is determined by the following factors in the current conditions: economic (capital-labor ratio of agricultural enterprises, investment potential of rural areas, financial resource capacity and availability for the development of small and medium businesses, the number and efficiency of development of households and self-employment in agricultural areas, etc.); social (provision of amenity infrastructure, state of the labor market, payroll rate, economic activity of the rural

population, working conditions, etc.); demographic (migration, life expectancy, death rates, structure of vocational education and training, etc.); natural and climatic (climatic pattern, geographical feature, degree of the territory development, quality of land resources, availability of natural resources, fertility of soils, etc.); cultural (prestige of agrarian specialties, mobility, housing conditions, availability of cultural facilities, organization of youth leisure, etc.), and others. Of course, it is difficult to analyze the influence of all factors in this article, therefore only few of them will be explored.

According to the authors, the following key factors have a positive impact on the development of the labor potential of the population of rural areas: possibility to increase the labor potential at the expense of the labor resources of rural areas and redistribution from excess working regions; great opportunities for development of the environmentally friendly agricultural production; high natural and resource potential; availability of considerable unused labor resources; relatively low cost of labor; high investment appeal of rural areas, etc. According to the authors, the following factors can be named as hampering the development of the labor potential of rural areas: unfavorable demographic situation; high rate of unemployment among rural population; outflow of rural population to cities; low payroll rate and income of the rural population; state of health of the rural population; insufficient level of rural infrastructure development; low level of housing improvement; stagnation of production and jobs in the basic branches of the rural economy; unfavorable, unattractive working conditions, etc. [Mirzabalaeva F.I., Alieva P.R., 2016]. According to the authors, the definition of the main areas of development of the labor potential of agricultural areas, taking into account the factors listed above, is very important.

METHODS

In the process of research, the authors used statistical methods, methods of sociological research, and methods of economic and mathematical modeling. The socio-economic systems are subject to severe volatility, and a change in the structure of indicators is observed in the conditions of globalization of the economy and state regulation. Due to this, relevant and flexible statistical tools should be used to forecast changes in complex socio-economic systems, which the labor market belongs to. In our view, additive methods should be used to forecast the labor potential of rural areas. The ARIMA method is a variation of the additive forecasting methods. It is used in the forecasting practice in cases where time series have a complex structure and therefore their simulation using traditional approaches does not produce an adequate result. The conducted analysis of the forecasting methods has shown that the autoregressive integrated moving average model (ARIMA, the Box-Jenkins model) should be chosen to build a forecast for the development of labor potential in the rural areas. Size of population engaged in agricultural production in the period of time t (Yt), taking into consideration the range of r exogenous factors xkt, looks as follows:

$$\Delta^d Y_t = c + \sum_{i=1}^{p} a_i \, \Delta^d Y_{t-1} + \sum_{j=1}^{q} b_j \, \varepsilon_{t-j} + \varepsilon_t + \sum_{k=1}^{r} g_k \, x_{kt} \quad (1)$$

where ε_t is a stationary time series (autocovariance process);
c, ai, bj, gk are parameters of the model;
Δ^d is an operator of the difference of time order d.

Data for the period from 2000 to 2014 are used to forecast the size of population employed in rural areas for 2025 (Table 1) (Yt).

Table 1
SIZE OF POPULATION EMPLOYED IN RURAL AREAS IN THE RUSSIAN FEDERATION, THOUS. PEOPLE.

Years	Size of population engaged in agricultural production, thous. people.
2000	8,366.8
2001	7,929.1
2002	7,640.2
2003	7,217.1
2004	7,300
2005	7,489
2006	7,254
2007	7,045
2008	6,774
2009	6,683
2010	6,622
2011	6,565
2012	6,467
2013	6,364
2014	6,247

Source: Compiled based on the data from the Federal State Statistics Service http://www.gks.ru/wps/wcm/connect/rosstat_main/rosstat/ru/statistics/wages/labour_force/#

The time series under study sees a distinct trend: average values of the size of the rural population are gradually decreasing. As a result, it can be concluded that the time series is rheonomous. Standard procedures are required to bring it to a state suitable for forecasting: periodic data evaluation, taking logarithms, etc. A logarithmic transformation is applied to reduce the variance of the analyzed series. A monotonic decreasing trend was revealed in result of this transformation. The trend is removed from the data using the first-order difference operator.

Autoregressive and autocorrelation components are used to take into account the impact of the key factors on the size of population employed in rural areas. The following exogenous variables of the model are singled out: state of the amenity infrastructure in rural areas; state of industrial infrastructure in rural areas; size of the average monthly wage in agriculture; federal and

regional programs of state support for agricultural producers; state programs to support young professionals working in the countryside.

Table 2
RESULTS OF QUESTIONING OF EXPERTS ON THE STATE OF EXOGENOUS FACTORS

Years	state of the amenity infrastructure in rural areas	state of industrial infrastructure in rural areas	size of the average monthly wage in agriculture	federal and regional programs of state support for agricultural producers	state programs to support young professionals working in the countryside
2000	3.7	4.0	3.0	4.0	3.0
2001	3.6	4.1	3.0	4.0	3.0
2002	3.6	4.2	3.0	4.2	3.0
2003	3.6	4.2	3.0	4.3	3.0
2004	3.6	4.4	3.0	4.4	3.0
2005	3.5	4.4	3.0	4.4	3.0
2006	3.5	4.4	3.0	4.5	3.2
2007	3.6	4.5	3.2	4.6	3.3
2008	3.5	4.8	3.3	4.8	3.4
2009	3.4	5.0	3.4	5.0	3.5
2010	3.3	5.0	3.4	5.1	4.0
2011	3.3	5.3	3.5	5.2	4.5
2012	3.3	5.4	3.6	5.5	5.0
2013	3.5	5.6	3.7	5.8	5.0
2014	3.5	5.8	3.8	6.0	5.0

Source: Compiled by the authors based on the results of the study

Empirical research methods were used to evaluate the exogenous factors that have impact on the state of the labor potential of rural areas. During the survey, 60 experts (20 teachers of agricultural universities and 40 top managers and senior specialists in rural areas of the Ryazan region) were polled. Assessments of the state of selected factors on a scale from one to ten were

obtained as a result of the questionnaire of the expert group within the framework of the study (Table 2).

The actual data obtained in result of the questioning of experts were normalized. An integral evaluation of the factors influencing the development of the labor potential of rural areas (X_{hkt}) was given using averaging, standardization to the level of the initial value of the time series, as well as the convolution of expert evaluations of n factors.

$$X_{kt} = \sqrt[\frac{n}{2}]{\prod_{h=1}^{n} X_{hkt}} = 1{,}239 \quad (2)$$

where X_{hkt} is a standardized evaluation of factor h at the time t.

As such, a process of improvement of the state of labor potential in rural areas emerged, determined by the growth of the investment attractiveness of the agricultural sector, and further by the adoption and implementation of state programs for the development of the agrarian sector. However, despite positive trends, the integral indicator of the group of qualitative factors of the labor potential of rural areas still remains quite low (1.239), which is caused by multiple problems in the agribusiness of the country.

As such, structural changes in the demand and supply of workforce take place in the rural labor market, which must be taken into account when drafting forecast scenarios for the development of the sector.

The first scenario can be attributed to the category of extensive. This is determined by the fact that it is supposed to maintain the existing trends in the development of labor potential in rural areas. The development of rural areas under the extensive scenario does not merely mean an increase in the size of labor resources in the sector, but also the presence of a progressive component, the share of which corresponds to the actual rates of development of the agricultural sector, taking into consideration the further implementation of the objectives for the priority national project "Development of agribusiness" [Federal target program "Sustainable development of rural areas for 2014-2017 and for the period through to 2020. 2013]. This scenario assumes the growth of the scale of agricultural production with a simultaneous systematic increase in labor productivity (about 4% per year) and an increase in high-performance jobs by 171,000.

The second scenario can be attributed to the category of intensive. It suggests the qualitative economic growth and describes the accelerated variant of development of the labor potential of rural areas. The intensive scenario will be based on the active state support, realization of major investment projects, attraction of domestic and foreign investors. Improvement of the quality of human capital assets and use of high-tech industries on this basis are fundamentally important. The conducted calculations allowed to build a forecast of the size of population engaged in agricultural production in 2025 for each of the forecasts. Under the intensive scenario of development of the labor market, the size of population engaged in agricultural production will amount to 7,740 thous. people, while under the extensive scenario it will amount to 6,414 thous. people.

The next stage in the formation of scenarios for the development of labor potential in rural areas is the calculation of the key technical and economic indicators for each scenario (Table 3). Actual rural population figures were taken for calculation of the performance indicators. Implementation of the developed forecasts will allow to reduce the unemployment rate to 8.5

and 8.3%, respectively. As such, the conducted research revealed that the implementation of the development of relevant measures would lead to positive results in the labor market. They will allow to increase the level of employment and income of the rural population significantly, to reduce the spread of poverty, etc. The developed forecast of development of the labor potential can be used by state authorities in formulation of the strategy for rural development, while methodological approaches and indicators can be applied to found the projects for the programs to ensure sustainable development of the rural market of labor.

Table 3
CONDITIONS OF THE DEVELOPED SCENARIOS FOR THE DEVELOPMENT OF THE DAIRY BREEDING

Indicators	Actual (2015)	Scenarios for development (2025)	
		extensive	intensive
Size of population living in rural areas, thous. people	37,887	37,060	37,060
Size of population engaged in agricultural production, thous. people	6,293	6,414	7,740
Average monthly wage in agriculture, rub.	19,721.1	29,192.05	66,854.53
Labor productivity, thous. rub.	281.0	415.95	2,395.63
Unemployment rate in the rural area, %	8.6	8.3	7.8

Source: Compiled by the authors based on the results of the research

RESULTS OF THE RESEARCH

Let's consider the actual situation in the rural market of labor and the impact of some of the factors on the processes of shaping the labor potential of agrarian territories. Rural unemployment is one of the most serious problems, which is one of the risks that contribute to the growth of poverty and hinder the sustainable development of the labor potential of rural areas. The level of employment of rural population in economically active age has increased from 57.8 in 2010 to 60.7% in 2015, while the level of general unemployment over this period has decreased from 10.6 to 7.9% (Table 4).

At the same time, the situation in the social labor field of rural areas remains complicated. There were 1,540 thous. unemployed in rural areas in 2015, including 1,411 at employable age [Survey of population on employment issues, 2015]. The level of general unemployment in rural areas is almost twice as high as in urban areas (Figure 1).

Men dominated in the distribution of unemployed people by sex in 2015: their share amounted to 55.7% of total unemployed. In the age structure of this category of unemployed, the most numerous were the groups of the population 20 to 49 years old inclusive, i.e. young people and the average employable age, while the least numerous were the groups 15 to 19 and 50 to 72 years old, i.e. young people and those in the senior employable age. In the composition of the unemployed by marital status, 49% were married and, accordingly, 51% were single. The largest mass educational group among the unemployed was represented by persons with secondary general (35.6) and secondary vocational (37.4) education, while the smallest groups were people with higher professional education (11.6). At the same time, only 35% were registered, while the remaining unemployed were socially unprotected in the market of labor: they did not receive

unemployment benefits, assistance in employment, vocational guidance, training and retraining. Excess of the scale of general unemployment over the scale of registered unemployment in 2015 was almost 3 times. Across the subjects of the Russian Federation, the ratio of total and registered unemployment in rural areas varies from 1.2 times in the Chukotka Autonomous District to 9.3 in the Republic of Mari El.

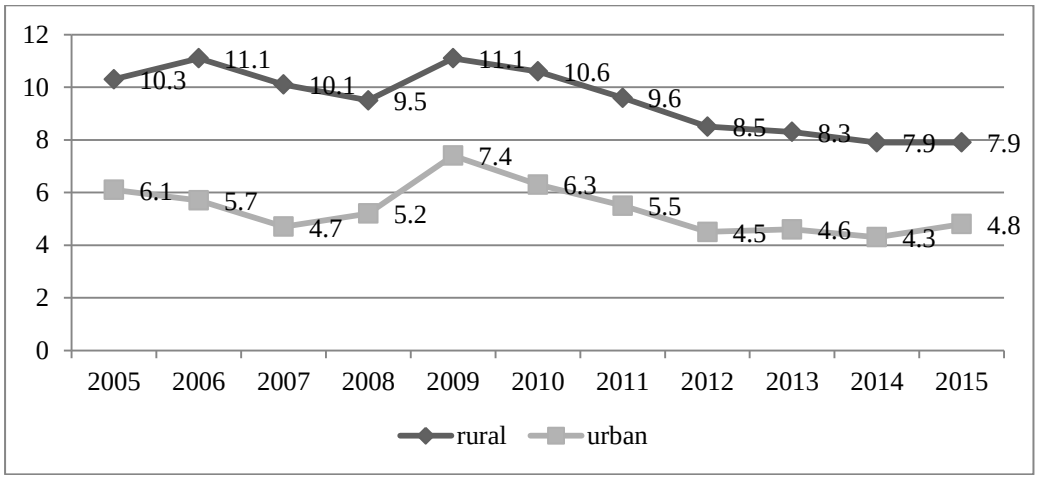
Table 4
INDICATORS DESCRIBING THE SITUATION IN THE RURAL MARKET OF LABOR

	Total, thous. people	of which		Labor force participation rate, %	Employment rate, %	Unemployment rate, %
		employed	unemployed			
2005	17,789	15,952	1,836	62.7	56.2	10.3
2006	18,249	16,223	2,026	63.1	56.1	11.1
2007	18,380	16,523	1,857	63.8	57.4	10.1
2008	18,329	16,595	1,734	64.0	57.9	9.5
2009	18,479	16,423	2,056	64.9	57.6	11.1
2010	18,308	16,362	1,947	64.7	57.8	10.6
2011	18,345	16,592	1,753	65.7	59.4	9.6
2012	18,100	16,561	1,540	65.8	60.2	8.5
2013	18,081	16,579	1,502	65.7	60.2	8.3
2014	17,893	16,484	1,408	65.7	60.6	7.9
2015	18,133	16,694	1,438	65.9	60.7	7.9

Source: compiled by the authors on the basis of Rosstat data [Workforce, employment and unemployment in Russia (based on the results of sample labor force surveys). 2016. – p. 16.]

The actual figures of rural unemployed people outside the state-regulated market of labor are much higher than recorded in official statistics. The matter is that when the unemployed are accounted according to the ILO methodology, not all citizens who do not have a profitable occupation and express a desire to work are assigned this status. The unemployed do not include the population looking for job but not ready to start it at the time of the survey on employment issues, as well as those who are not looking for job, including those who gave up finding job [Bondarenko L., Tatarova L., 2014.]. A large gap between the number of unemployed counted according to the ILO methodology and the number of those registered is explained by the fact that the prestige of the state employment services as an authority capable of solving the problems of the unemployed is very low and application there for help in employment is low.

Figure 1
GENERAL UNEMPLOYMENT RATE IN URBAN AND RURAL AREAS, % (COMPILED BY THE AUTHORS USING THE ROSSTAT DATA. [WORKFORCE, EMPLOYMENT AND UNEMPLOYMENT IN RUSSIA, 2016, P.15-16.]



The unemployment benefit does not provide the minimum required rate of replacement of lost earnings; the jobs offered do not meet the requirements of those in need of employment, as they are mostly jobs with wages below the subsistence line or with hard working conditions, etc. In rural areas, the situation is aggravated by the territorial remoteness of employment centers, lack of any jobs at the place of residence, and poor awareness of the population about the kinds of assistance that employment services can provide.

Long-term unemployment is characteristic for the majority of rural residents; 33.7% of them had no job for more than one year in 2015. It must be noted that 26.8% of unemployed were in a situation of hard-core unemployment in rural areas in 2010. Long-term unemployment is one of the most acute social problems of the modern market of labor in rural areas. It leads to de-qualification of the workforce and the accelerated depreciation of human capital assets, increased poverty and economic inequality, as well as weaker motivation to seek for a job. Besides, hard-core unemployment does not fulfill the functions of anti-inflationary restraint and reconciliation of supply and demand in the labor market. Unemployment also affects the mental and physical health of the rural population. According to opinion polls, 40 to 75% of various categories of unemployed people experience feelings of frustration, loneliness, resentment, uselessness, anxiety, uncertainty and despair. They get insomnia, depression, irritability, decreased vitality and nerve strain. In these conditions, along with supporting the income of unemployed people, it is necessary to more actively implement measures aimed at improving their physical and mental well-being and eliminating social isolation [Rodionova L.V., 2012].

Poverty is the most severe social consequence of unemployment. Rural poverty is described by a massive nature and particular depth. Its rate exceeds 80% in some settlements, and the poor population is not able to solve the basic tasks of development of the agrarian economy and the social field of the village, let alone economic development. Their employment in decent jobs is the most efficient way to overcome poverty and the most important prerequisite for the transition of rural areas to sustainable development.

Migration is another important factor affecting the formation of labor potential. The share of urban residents amounted to 1/3 by the end of the 1930s, to 1/2 in 1957, and to nearly 3/4 of the population of Russia in 1991, reaching the highest number of over 108 mln people by 2016 .

According to the National Census 2010, more than 37 million people or 26% of the country's population live in 154 thousand rural settlements. At the same time, 40% of these rural areas are classified as underpopulated – no more than 10 people living within one settlement. Intra-Russian migration mobility contributed to a predominant concentration of population and labor resources in the central, north-western and southern regions, and to the formation of a personnel deficit in the northern and eastern regions of the country at the same time. Unbalanced flows of workforce in Russia, which lead to an uneven distribution of labor resources across the country, particularly to their surplus in some regions and shortages in others, have the most negative impact on the agribusiness of the country. This often causes a high level of unemployment, the most characteristic for the labor-surplus regions of Russia in the first place, which is one of the reasons for the outflow of the rural population [Shichkin I.A., 2015].

In general, the scale of internal migration in Russia during 1989-2010 was described by negative dynamics, which led to a reduction in the number of internal migrations more than twice. Since 2011, as a result of changes in the procedure for statistical accounting, in particular the inclusion of persons registered in the place of stay for a period of 9 months or more in the permanent migrants, the statistics has included people who have lived for a long time outside the place of permanent residence and temporarily registered there for a specified period – for example, students. Therefore, according to Rosstat data, the scale of internal migration in the period of 2011-2015 increased significantly, nearly reaching the 1990 level. However, if the former instruments of statistical accounting are operated, the actual volumes of internal displacements remain in the range of 2-2.5 mln people [Size and migration of the population of the Russian Federation in 2015. 2016, http://www.gks.ru/wps/wcm/connect/rosstat_main/rosstat/ru/statistics/publications/catalog/doc_1140096034906].

Figure 2
DEMOGRAPHIC YEARBOOK OF RUSSIA, 2015, P. 15.

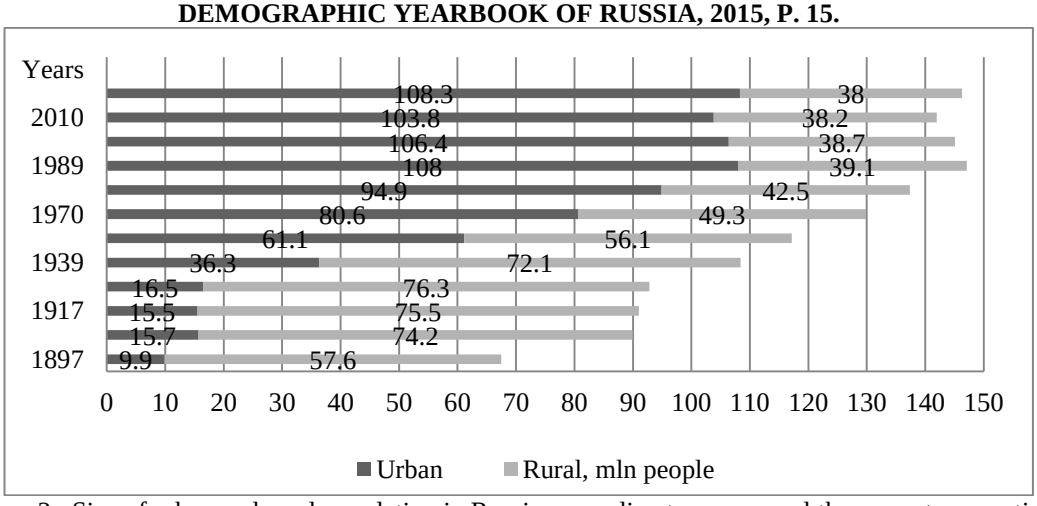
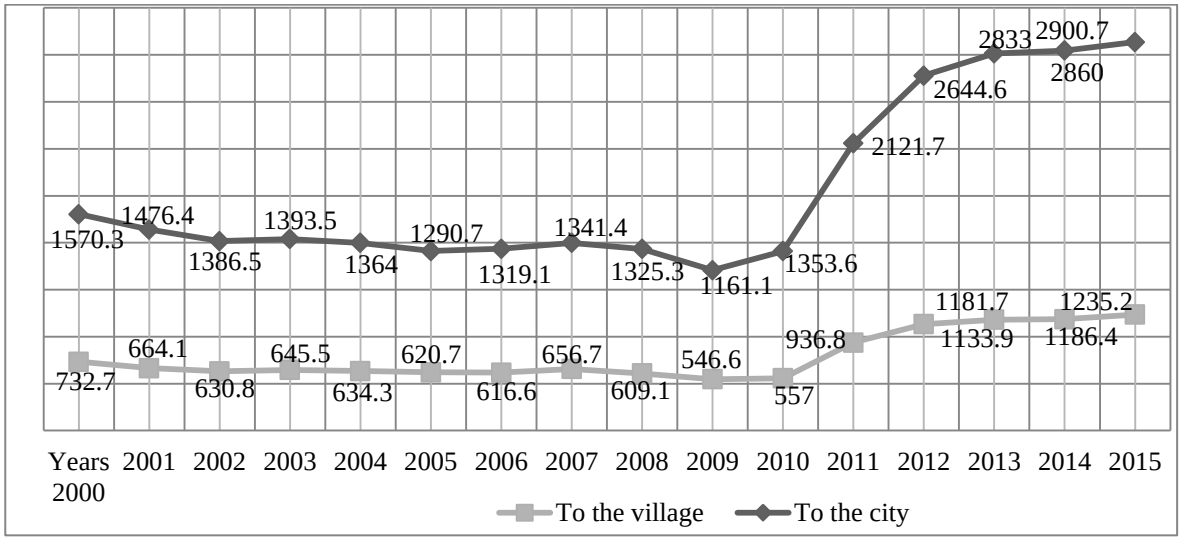


Figure 2 : Size of urban and rural population in Russia, according to census and the current accounting

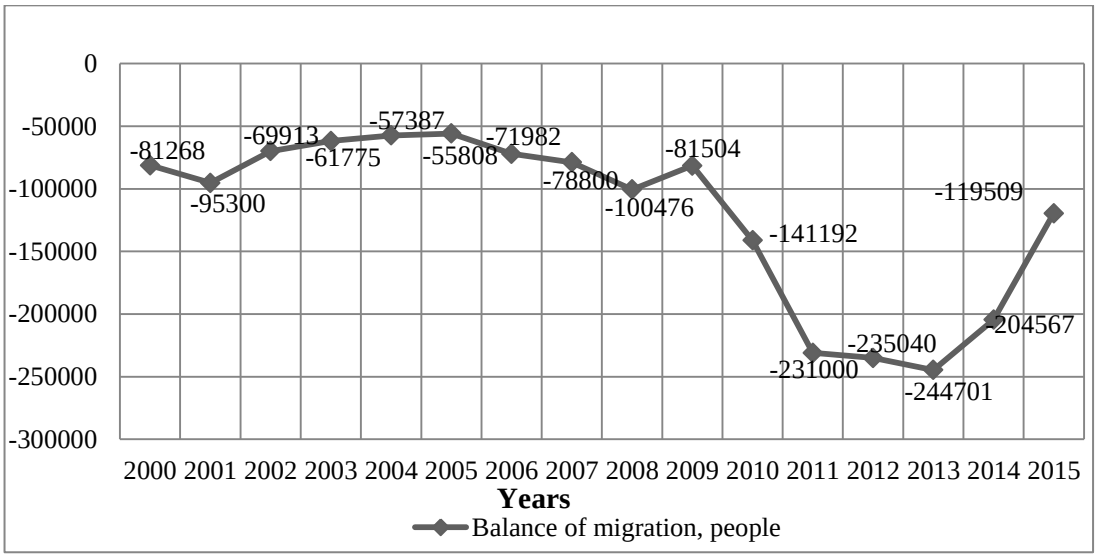
Figure 3
NUMBER OF PEOPLE WHO HAVE ARRIVED TO URBAN AND RURAL SETTLEMENTS OF RUSSIA OVER THE PERIOD 2000-2015, THOUS. PEOPLE.



In recent years, urban settlements and agglomerations have improved their migration appeal, accumulating both domestic and foreign labor resources. Meanwhile, the outflow of the rural population of Russia to cities continues, which is partly offset by immigration of foreign citizens, who often give preference to rural areas (Figure 3). Migration of rural population to urban areas contributes to the excessive concentration of labor resources in relatively small areas and to the elimination of smaller settlements. The exploitation of agricultural lands, which are the main resource potential of the agribusiness of the country, becomes problematic without such settlements. When describing the current trends of population exchange with rural settlements in Russia, it must be noted that migration turnover grew by 1% in 2015 in comparison with the figure of the year before, including a 10% growth in the share of foreign citizens residing in rural areas. Meanwhile, migration loss amounted to 137,871 people in 2014 and 47,535 people in 2015, mainly due to women leaving the village, as their share among the migrants to the urban area is higher than that of men. On the contrary, foreign migrants living in rural areas, mainly for the purpose of carrying out labor activities, were dominated by men by 38% and 27%, respectively, over the period of 2014-2015.

As a result of migration exchange with urban settlements, the rural areas of Russia have lost about 1.7 mln permanent residents over the past 15 years, with the most intensive urbanization processes occurring in 2011-2013 (Figure 4).

Figure 4
BALANCE OF MIGRATION IN RURAL AREAS RESULTING FROM INTRA-RUSSIAN POPULATION EXCHANGE WITH URBAN SETTLEMENTS OF THE RUSSIAN FEDERATION OVER THE PERIOD OF 2000-2015, PEOPLE.



Employable population shows the most active migratory mobility. The share of people of this age group in the total migration turnover of rural settlements amounted to 71.2% (1,961,827 people) in 2014 and to 70.5% in 2015; at the same time, the number of migrants (1,963,860 people) also increased. The number of foreign citizens of employable age amounted to 150,686 people or 77% in 2015. [Size and migration of the population of the Russian Federation in 2015. 2016,

http://www.gks.ru/wps/wcm/connect/rosstat_main/rosstat/ru/statistics/publications/catalog/doc_1140096034906].

Young people of the 15-29 age group accounted for half of all incomers and 55% of those who left rural areas in 2015. The share of people with primary vocational education and secondary (complete) general education predominates among the migrants from rural settlements. In some cases, a steady migration outflow of the employable rural population in the reproductive age affects the socio-economic development of these areas. The relevant problem of building the labor potential of the country's agriculture is attracting and securing the youth, especially in the agricultural specialties, due to their low prestige and low wages. There is a high demand for skilled livestock breeders, machine operators, agronomists, animal technicians, veterinarians, builders, drivers, engineers, turners, accountants, teachers and paramedics in the village. Lack of qualified specialists in the agribusiness of Russia hinders the implementation of the current policy of import substitution.

An increase in the migration differentiation of the country's territory broken down by federal districts has been observed in recent years (Table 5).

Table 5
AGGREGATE MIGRATION GAIN (LOSS) IN THE RURAL POPULATION OF THE FEDERAL DISTRICTS OF RUSSIA RESULTING FROM INTRA-RUSSIAN MOVEMENTS OVER THE PERIOD OF 2013-2015.

Federal district	Balance of migration, people	Size of population as of January 1, 2016	Share of rural population, %
Central	-46,482	39,104,319	18
Northwestern	9,586	13,853,694	16
Southern	-81,227	14,044,580	37
Ural	24,007	12,308,103	19
Far Eastern	-29,351	6,194,969	24
North Caucasian	-116,610	9,718,001	50
Siberian	-110,315	19,324,031	27
Volga	-213,954	29,673,644	29
Crimean	-4431*	2,323,369	42

Source: Data on the Crimean Federal District are provided for 2015* [Size and migration of the population of the Russian Federation in 2015. 2016, http://www.gks.ru/wps/wcm/connect/rosstat_main/rosstat/ru/statistics/publications/catalog/doc_1140096034906]

Traditionally high rates of outflow of rural population to urban settlements of Russia are typical of the peripheral regions of the Volga, North Caucasian, Siberian and Southern Federal Districts. However, taking into consideration that the North Caucasian Federal District has high natural population growth and share of rural residents, a depopulation type of population reproduction has been formed in most regions of the Volga Federal District, along with a decrease in the share of rural residents, which affects the labor potential of the local population and sustainable development of territories. On the contrary, the positive balance of migration in rural areas in exchange with urban settlements has been observed in the Ural and, in recent years, the North-West Federal Districts.

Major Million-strong cities – Moscow, Saint Petersburg, Kazan, Ufa, Yekaterinburg, Nizhny Novgorod, and Samara – primarily enjoy migratory attractiveness for rural residents. At the same time, many rural migrants prefer to move to regional, republican and district urban settlements, because this often shortens the duration of social adaptation.

There are various reasons that impact migration flows, but it is primarily the lack of opportunities for an adequate life in the donor regions. The determinants of intra-Russian migration of the rural population include the uneven socio-economic development of the country's territories and the associated low level and quality of life in rural areas in comparison with urban settlements; low level of wages in agriculture and the public sector; unsatisfactory rates of construction and commissioning of individual residential buildings in rural areas; lack of or insufficient support of the rural population by local authorities in

the employment matters; unemployment due to a shortage or lack of vacant jobs for the employable rural population; a weak level of development of the social, road, transport, engineering and telecommunications infrastructure; limited opportunities for educational, professional and personal development.

DISCUSSION OF RESULTS

Urgency of the problems identified in the study determines the expediency to develop a set of priority areas for the development of the labor potential of the rural population, including measures in the fields of healthcare, education, socio-economic and migration policy of the state, including:

1. Maintaining and strengthening the health of the rural population as one of the key components of the labor potential:

- construction and reconstruction of the rural health posts, as well as better transport and information equipping of district doctors;
- Provision of high-quality and affordable healthcare services;
- Decrease in the share of rural population addicted to psychoactive substances; and
- Propaganda of self-preserving behavior and a healthy lifestyle.

2. The following tasks need to be solved to ensure an adequate quality of life for the rural population:

3.

- Increase of the level of wages in the economy, since they remain the main motive and material incentive for labor activities. In turn, the level of income determines a standard of living, which is a factor of the development of the human potential of the population, in particular rural population. It is very important to have a job with decent salary in modern society, which allows to ensure economic freedom for a working person and their family, which means solving housing problems in a place of residence, getting medical services on a commercial basis, developing, having vacations, etc.
- Implementation of new industry remuneration systems in order to ensure uniform approaches to regulating the wages of employees of budgetary organizations towards raising their remuneration. Equalization of the differentiation in the levels of remuneration in the branches of the national economy of the country in general is required. Average cost of labor in each profession must be calculated and codified at the state level. Regulating authorities are required to exercise control over employers in order to prevent labor remuneration below the subsistence level set in each region.
- Assistance in solving housing problems of the rural population. This area suggests using a mortgage lending system with state interest rate subsidies and elimination of the down payment in order to create opportunities to purchase housing under construction or ready-made housing, as well as land to build a house on. Development of regional housing programs with the participation of employers focused on the specialists in demand in rural areas is advisable.
- Construction and modernization of social infrastructure in rural settlements. The most important elements of the rural social infrastructure, which the rural population needs along with housing, include healthcare, educational, recreational, sports, retail and catering facilities. Development of these infrastructure components creates the conditions for increasing the intellectual, moral and physical health of the rural population and thereby contributes to the development of human potential. Availability of kindergartens, schools, health posts, cultural and sports centers in rural areas will slow urbanization processes. In this regard, it is advisable to take into consideration the experience of Belarus in the construction and development of agro-towns, which are modern and well-equipped rural settlements, where industrial and social infrastructure is created to ensure high social standards and an adequate standard of living for the local population and residents of the adjacent territories.
- Payout of a lump sum cash benefit – "rural maternal capital" – for each child born who has lived for more than three years in the village in the regions with the established depopulation type of population reproduction.

3. Intensification of entrepreneurial activity and self-employment is considered one of the key strategic areas of development of the labor potential of the rural population, including:

- creation of favorable conditions for the development of self-employment and small business of rural youth in agribusiness, including through preferential taxation and non-reciprocal subsidization of the promising business initiatives.
- Grant support for rural youth projects and entrepreneurial initiatives (Kakkar, Vikas and Yan, Isabel K.M., 2011).
- Stimulation of investment activities, including through the reduction of the tax burden on investors engaged in investment projects in agriculture.
- Intensification of social responsibility of business in rural areas. State incentives in the form of grants, subsidies and tax preferences can intensify business efforts related to the implementation of educational and cultural programs, projects for the upgrade of rural areas, renovation of local infrastructure and various social events.
- Development of a state program to support ethno and agro-tourism. The rural residents can position their settlement as a tourist destination and actively promote various services and products by attracting investors, partners and customers (Peri, Giovanni, 2016). This will result in creation of additional jobs in the village and promote intercultural communication and the in-depth development of rural residents. It is advisable to strengthen this area in the context of the upcoming World Cup 2018, during which tens of thousands of foreign tourists can be introduced to the recreational and cultural component of rural areas of Russia.
- Reduction in unsustainable employment of rural population through mandatory conclusion of long-term employment agreements and strengthening of control over employers' compliance with all labor rights and provision of social guarantees for employees.
- Overcoming the culture of social dependency, formation of a stable focus on active participation in the life of the small motherland in the youth as a condition for improving the quality of life of the territory.

4. The following priority tasks must be solved in order to increase the educational and professional level of the rural population as a fundamental component of the labor potential:

- Development of the labor potential of the rural population by their professional training, advanced training and retraining. Continuous education should take a central role in the training system for agribusiness. Motivate rural residents to study and acquire new knowledge, skills and competencies throughout their lives.

- Adjustment of the structure of vocational education, taking into consideration the prospects of socio-economic development of rural areas, conducted on the basis of monitoring the labor market demands.
- Broad application of opportunities of distance learning and contract form of employment for graduates of educational institutions.
- Development of regional programs of agricultural exchange of highly qualified specialists for the dissemination of positive labor and entrepreneurial experience. Establishment of Centers of Excellence in agroindustrial production is advisable (National Farmers' Federation, 2014).
- Introduction of travelling seminars, short-term courses and special programs for training personnel that is in demand in rural areas into broad practice.
- Creation of opportunities for teaching the rural population the most popular skills: computer literacy, work on the Internet, customer care in the service sector, training communicative skills.
- Involvement of small and medium-sized businesses in training of young professionals for agribusiness, which suggests provision of opportunities for internships and subsequent employment. In addition, successful managers of agricultural enterprises can act as mentors and tutors for beginning entrepreneurs and young specialists.
- Development of innovative approaches to evoke the interest of pupils and students in the problems of the agribusiness of the country and their active involvement in participation in agricultural exhibitions and competitions.

- Procedures for testing and interviewing the graduates of rural schools in order to find out shortcomings in acquired knowledge and competencies. This information can provide a more objective picture of the level of graduates' training and then allow to strengthen the labor potential of the rural youth (Regional Stewardship Department, 2012).
- Expansion and deepening of the work on informing the rural youth about the state of the regional labor markets, trends of their development, job opportunities on shift and seasonal jobs.

New opportunities for entrepreneurship and self-employment rapidly emerge during the establishment and development of the digital economy. Interactive platforms of talents as one of the tools of the digital economy help the unemployed population and as those who seek for additional income self-realize, turning them into active economic entities. More and more specialists in urban areas abandon the traditional stationary workplace and move on to remote cooperation, in particular using such online platforms as Freelancer.com, Free-lance.ru and Prohq.ru. At the same time, freelance job encourages performers to constantly improve their qualification and expand their specialization. More active use of digital technology by the rural population, mainly young people, in the field of employment will contribute both to the development of their labor potential and to the diminishing intensity of urban processes in Russia.

Modern digitalization offers a great potential for developing the labor potential of the rural areas. At the same time, those who are receptive to changes will benefit and take advantages, as opposed to those who resist and ignore them. Therefore, the rural employable population should repeatedly upgrade their professional and educational skills throughout the working life, including timely acquiring new information and communication technology in order to ensure their relevance and competitiveness in the labor market.

5. Promoting interterritorial mobility with the purpose of developing the human and labor potential of the rural population in result of acquiring new knowledge, skills and experience can be achieved through the following measures:

- Elimination of administrative barriers to internal migration and ensuring freedom of travel for Russian citizens and their choice of the place of residence and stay within the country through a transition from permissive to declarative registration at the place of residence.
- Modernization of the transport infrastructure with the purpose of saving time while improving the quality and availability of rail, road and air communications. The developed transport links between rural and urban settlements in Russia will provide an opportunity for rural residents to obtain education and modern professional skills, to work, rest and travel, thus contributing to the development of their labor potential without the need to move to other regions and countries for permanent residence.
- Expansion and deepening of the work on informing the population and employers through the mass media about the state of regional labor markets, trends of their development and employment opportunities. Improvement of the mechanism for collecting and disseminating information on employment opportunities for citizens to other regions for seasonal and temporary jobs. Annual identification of the migration patterns of the rural population (conducting sociological surveys and identification of the main causes of migration of the employable population).
- Partial or full reimbursement by the government of the expenses of the rural youth associated with moving to another settlement and training in the popular specialty in case of concluding an agreement on subsequent employment in the rural area.
- Provision of financial opportunities for moving and adaptation of young Russian specialists, graduates of agricultural higher educational institutions, agricultural technical schools and colleges in rural settlements. The government should offer Russian citizens a social benefit package that can include compensation for

the transportation expenses of the migrant and their family members, associated with moving to the countryside; provision of accommodation and a lump sum adaptation benefit.

- Development of the programs to attract seasonal and shift workers in all sectors of agriculture will allow to partly reproduce the quantitative parameters of the labor potential of the agribusiness of the country.
- Reimbursement by the government of the expenses of the rural youth associated with moving to another settlement and training in the popular specialty in case of concluding an agreement on subsequent employment in the rural area.
- Advisable introduction of a system of preferences and measures of state support for foreign labor migrants who are willing to work in rural areas and possess a profession or qualifications, the demand for which cannot be satisfied by internal labor resources.
- Targeted measures are required to attract workforce to the social sphere of the territories with a corresponding shortage. The program "Country Doctor" that has been implemented since 2012 and is aimed at overcoming the shortage of personnel in rural healthcare can serve as a positive example.

The growing importance of the development of rural areas, modernization of agribusiness and strengthening of the labor potential of the rural population have all focused increased attention to this range of problems on the international agenda. The member countries of the Organization for Economic Co-operation and Development (OECD) took a course to build a new agricultural paradigm in 2006, which assumes a radical reform of the state policy in agribusiness and a contemporary approach to the development of the rural labor resources. The action plan "New Rural Policy: Linking Up For Growth" was developed. The need to modernize rural areas and their labor potential was also noted in the framework of the VIIIth OECD Conference "Innovation and modernization of the economy of non-urbanized regions" held in Krasnoyarsk in 2012 (Organization for Economic Co-operation and Development OECD, 2015).

In our opinion, the analysis of the experience of the European Agricultural Fund for Rural Development (EAFRD), which has the provision of a high quality of life for the rural population and the diversification of the rural economy as a strategic goal (Tudor, Monica, 2009), seems practical and expedient.

It is very important to establish a high-tech, productive and competitive agribusiness in the context of globalization, increasing risks and opportunities. This aim cannot be achieved without investing in the human capital assets of the rural population. The state should develop the labor potential of the population as a pillar of its own geopolitical and socio-economic security by promoting the improvement of the living standards of the villagers, maintaining their health, upgrading local infrastructure, providing opportunities for education, employment and running private business.

CONCLUSION

Human resources in rural areas are a prerequisite for food security and a key factor of the socio-economic development of Russia. Despite the positive changes, the overall socio-economic situation in the countryside currently remains complicated. This article analyzed such acute socio-economic problems of agrarian territories as unemployment, which leads to the dequalification of the workforce and the accelerated depreciation of human capital assets, growing poverty and increased economic inequality, and a weaker motivation to look for a job. The authors have justified the need for the development of rural areas as the creation of contemporary social, road, transport, engineering and telecommunications

infrastructures; creation of new opportunities for educational, professional and personal development of the rural population.

In this regard, there are the following priority areas of the development of rural areas in the context of improving employment rate and efficiency of using the labor potential, overcoming the scale of rural unemployment and improving the efficiency of the use of the rural labor resources; stimulating the creation of new jobs; developing tourism and associated labor-intensive service industries; eliminating the high level of the personnel turnover in agribusiness; increasing the number of graduates of agrarian educational institutions settled in rural areas; eliminating the negative demographic processes and trends (falling birth rate, growing level of mortality and morbidity, addiction to psychoactive substances, etc.); creating conditions for the development of territorial mobility of citizens; improving the material wealth and social security of rural residents, declining psychological dissatisfaction with working, living and leisure conditions; easing the informal, hidden and incomplete employment in rural areas; and preventing the ongoing process of releasing labor from the sectors and branches of the rural economy.

In their future studies, the authors are going to establish the impact on the labor potential of rural areas of such important factors as the capital-labor ratio of agricultural production, dynamics of investment in agriculture, features of self-employment and the development of households in rural areas. In conclusion, it should be noted that the measures proposed in the study and aimed at developing and implementing the labor potential of the rural population of Russia can be used in the development of the federal and regional programs for socio-economic development, thus contributing to the sustainable development of rural areas.

BIBLIOGRAPHY

Mirzabalaeva F.I., Alieva P.R. Faktory formirovaniya trudovogo potentsiala naseleniya selskikh territoriy [Factors of building the labor potential of the population in rural areas]. Bulletin of the Tver State University. Series: Economics and management. 2016. No.4. pp. 117-123.

http://www.gks.ru/wps/wcm/connect/rosstat_main/rosstat/ru/statistics/wages/labour_force/#

Federal target program "Ustoychivoye razvitiye selskikh territoriy na 2014 - 2017 gody i na period do 2020 goda [Sustainable development of rural areas for 2014-2017 and for the period through to 2020]"// "Collected Legislation of the Russian Federation", 29.07.2013, No. 30 (Part II), Article 4110.

Obsledovaniye naseleniya po problemam zanyatosti [Survey of population on employment issues] – 2015. Access mode: http://www.gks.ru/bgd/regl/b15_30/Main.htm

Rabochaya sila, zanyatost i bezrabotitsa v Rossii (po rezultatam vyborochnykh obsledovaniy rabochey sily). [Workforce, employment and unemployment in Russia (based on the results of sample labor force surveys)] 2016: Statistical book/Rosstat. – M., 2016. – 146 p.] Federal State Statistics Service. Official site. Access mode: www.gks.ru.

Bondarenko L., Tatarova L. Zanyatost selskogo naseleniya i sotsialnaya zashchita bezrabotnykh [Employment of the rural population and social protection of the unemployed population] // Economics of agriculture in Russia. 2014. No. 2. pp. 58-65.

Rodionova L.V. Bezrabotitsa kak faktor selskoy bednosti i neustoychivosti selskikh territoriy [Unemployment as a factor of rural poverty and unsustainability of rural areas] // Sociology in the modern world science, education, creativity. 2012. No. 4 (4). pp. 155-158.

Demograficheskiy yezhegodnik Rossii – 2015 [Demographic yearbook of Russia – 2015].: Statistical book/Rosstat. – M., 2015. – 264 p.] Federal State Statistics Service. Official site. Access mode: www.gks.ru.

Shichkin I.A. Migratsiya naseleniya kak faktor vyravnivaniya sotsialno-ekonomicheskoy differentsiatsii regionov Rossii [Migration of the population as a factor of equalization of socio-economic differentiation of regions in Russia]/ I.A. Shichkin // Living standard of population of the Russian regions, 2015. – No. 4 (198). – pp. 97-105.

Chislennost i migratsiya naseleniya Rossiyskoy Federatsii v 2015 godu [Size and migration of the population of the Russian Federation in 2015]: Statistical book/Rosstat. M., 2016. – 169 p. Federal State Statistics Service. Official site. Access mode: www.gks.ru.

Kakkar, Vikas and Yan, Isabel K.M., 2011. Sectoral Capital–Labor Ratios and Total Factor Productivity: Evidence from Asia. Review of International Economics, 19(4), pp: 674–684.

[Peri, Giovanni, 2016. Immigrants, Productivity, and Labor Markets. Journal of Economic Perspectives, 30(4), pp: 3–30.

National Farmers' Federation, 2014. Australian National Agriculture Workforce Development Plan. National Agribusiness Education, Skills and Labour Taskforce (NEST), pp. 4–37.

[Regional Stewardship Department at Bow Valley College is coordinated by Corinne Finnie, 2012. Rural Workforce Development: Assessing Employer Needs and Improving Access to Training. Government of Alberta, Human Services, pp: 4–86.

Organisation for Economic Co-operation and Development OECD, 2015. New Rural Policy: Linking Up For Growth. Backround Document National Prosperity Through Modern Rural Policy Conference, pp. 5–36.

Tudor, Monica, 2009. Rural Labour Force and Multifunctional Development in the Territory. Agricultural Economics and Rural Development, New Series, Year VI, no. 2, pp. 235–247.

CHALLENGES AND OPPORTUNITIES OF STATE REGULATION OF THE INNOVATION PROCESS IN THE RUSSIAN MINERAL RESOURCES SECTOR

Marina Anatolyevna Nevskaya, Saint Petersburg Mining University
Oksana Anatolyevna Marinina, Saint Petersburg Mining University

ABSTRACT

The low innovative activity of companies – subsoil users is one of the problems of the Russian mineral resources sector, which remains a donor of the country's economy providing the bulk of funding in the export and budget. In conditions of economic sanctions and the lack of financial resources, the state regulation plays a significant role in initiating innovation activities and increasing the innovation activity. State regulation of the innovation process in the mineral resources sector can be carried out by combining the ways to support the innovation activities and stimulate demand for innovations. The purpose of the study is to substantiate the forms and methods of state regulation of the innovation process, taking into account the experience of foreign countries.

In the article, the reasons of the low innovation activity of the Russian companies of the mineral resources sector have been considered, the conditions ensuring the development of the innovation process have been substantiated; the measures of regulation and forms of state support of the innovation activities have been analyzed and summarized.

Keywords: innovations, state regulation of innovation activities, innovative activity of companies in the mineral resources sector, state support, stimulation of demand for innovation.

INTRODUCTION

The mineral resources sector remains one of the main sectors of the Russian economy providing a large share of tax revenues to the budget. According to the official data, only the share of the mineral extraction tax in the consolidated budget is 23% (for comparison, the share of the value-added tax is 18.7%, the corporate profit tax is 18.8%, the personal income tax is 20%) (Federal State Statistics Service of the Russian Federation, 2016a). The share of oil and gas revenues is still high – more than 42% (Ministry of Finance of the Russian Federation, 2016).

At the same time, for the period of 2011-2015 there was a tendency towards a decrease in the innovative activity in the mining sector (the share of organizations implementing innovations of various types has decreased from 8.4% (2011) to 6.9% (2015), and these figures are lower than across the board in the Russian Federation (Federal State Statistics Service of the Russian Federation, 2016b).

Despite the increase in the number of developed technologies over a five-year period, in absolute terms their number is very small in the mining sector and is just over a percent in 2015 of the total number of developments. For example, 31.6% of developments fell to the

share of processing industries (metallurgy – only 6.7% of the total number in the Russian Federation).

The share of innovative goods, works and services decreased significantly from 6.7% to 3.7% during the corresponding period, while the share of depreciation of fixed assets (more than 50%) remains high with a tendency towards the reduction of their renewal (Federal State Statistics Service of the Russian Federation, 2016c).

In general, the low innovative activity of Russian companies in the main industrial economic sectors should be noted in comparison with foreign countries.

The lack of own financial resources with limited credit availability, the inertia of managers' thinking and the low innovative culture, the lack of skilled innovation-oriented personnel (Demicheva, 2010), the unfavorable external economic situation, the low level of communication between participants of the innovation process (generators and consumers of innovations) (Dezhina, 2016), the low level of awareness of advanced technologies are the most common reasons for the low innovative activity of Russian companies in the mineral resources sector.

These reasons determine the "sluggish" nature of innovation processes in the Russian economy, in particular, in the mining industry of the mineral resources sector.

The main role in the formation, development and acceleration of innovation processes is assigned to the state, its innovation policy, regulation mechanisms and tools, especially in unfavorable external economic conditions. This mainly determines the relevance of the development of ways and methods of state support of the innovation activities and stimulation of innovations.

This study was carried out in the framework of the state budget research project "Ensuring the sustainable development of Russia's mineral resources sector in the conditions of the need for innovative transformations and the globalization of commodity markets" (2016), the methodology of which was first of all based on the analysis of Russian and foreign experience, state measures of the stimulation of the innovative activity in the mineral resources sector, which includes the reproduction and extraction of mineral, fuel and energy resources.

REVIEW OF LITERATURE

In scientific publications, the innovation process means the development and commercialization of the invention of new technologies, types of products and services, organizational and technical, economic, social or other decisions and other results of intellectual activity (Zharikov, 2009).The innovation process is a set of scientific and technical, technological and organizational changes occurring in the process of innovation implementation (Medynsky, 2008).The innovation activities (IAs) include a *complex* of scientific, technological, organizational, financial and commercial *activities* aimed at the commercialization of accumulated knowledge, technologies and equipment (Hargadon, 2003; Drucker, 1985; Drucker *et al.*, 2013; Innovation and Entrepreneurship in a Global Economy, n.d.).

The innovation activities mean the activities aimed at *obtaining the results* of scientific research and performing the experimental development, and their *implementatio*n as a new or improved product in demand by the market, as well as at *creating a new* or *improving* the existing technological process that will be used in the future production activities of the company (Kravtsova, & Voronin, 2008). IAs are the processes of creation, development and

distribution of new or improved types of products, services, technologies, raw materials and materials, methods of organizing the production and management (Batkovsky, 2012).

Thus, the innovation activities can be considered as a complex of activities aimed at the commercialization of products and technologies obtained during their implementation, as activities related to the development and implementation of improved products and technologies demanded by the market, as a process of creation and distribution of innovations.

The state support and stimulation of the innovation activities of economic entities present one of the conditions ensuring the effectiveness of the innovation process.

METHODS OF THE STUDY

Research results are based on general scientific methods of analysis, synthesis, analogy and systemic approach. The methods collectively used in the study made it possible to ensure the reliability and validity of the conclusions.

The Methodology Of The Study Was Based On The Following Algorithm:

1. The analysis of the innovative activity of organizations of the mineral resources sector based on official statistics for the period of 2010-2015 conducted for general diagnostics of the state of the innovative activity in the mining sector and justification of the relevance of the research topic.
2. Determination of the content of the main categories that characterize the innovative activity and the innovation process from the perspective of state regulation.
3. The analysis of regulatory support of state regulation of the innovation process in the Russian Federation to identify and summarize the basic principles, subjects, objects, directions and means of state regulation established by law.
4. Identification and substantiation of state regulation methods of the innovation process, taking into account the best foreign experience in this sphere.

RESULTS OF THE STUDY

In the Russian Federation, the directions of the innovative activity and particular actions of the state in the sphere of innovative development are supervised by two executive bodies: the Ministry of Education and Science of the Russian Federation and the Ministry of Economic Development of the Russian Federation participating in the strategic planning of state development.

At present, the main documents of strategic planning of the development of the Russian Federation are as follows: "Forecast of the Scientific and Technological Development of the Russian Federation for the Period until 2030", determining the most promising areas of scientific research, and "Forecast of the Long-term Socio-Economic Development of the Russian Federation for the Period until 2030", determining the directions of the long-term socio-economic development of the country and the most promising areas of economic activity.

These documents form the basis for the development of state programs for the development and support of innovation activities.

According to the "Forecast of Scientific and Technological Development of the Russian Federation for the Period until 2030", the following are identified as priority areas of scientific and technological development:

1. Information and communication technologies
2. Life sciences (biotechnology, medicine and health)
3. New materials and nanotechnologies
4. Environmental management
5. Transport and space systems
6. Energy efficiency and energy saving.

In 2008, the "Concept of Long-Term Socio-Economic Development of the Russian Federation until 2020" established the priorities for the innovative development of the national economy sectors: *high-tech and basic* sectors.

The *high-tech sector* includes aviation and aerospace industry, shipbuilding, radio electronic industry, nuclear power industry complex, power engineering industry, information and communication technologies; the development is determined by strategies and long-term federal state programs and sets of measures.

The tasks of innovative development of high-tech industries are, in particular, the provision of technological leadership in a number of key areas, the expansion of Russia's positions in the world markets of science-intensive products and an increase in Russia's strategic presence in the markets of high-technology products and intellectual services.

The task of the basic industries (energy, oil and gas, transportation and heavy engineering industries, as well as the machine tool industry, mining and metals production sector) is to support high-tech industries.

The tasks of the innovative development of basic industries are as follows: modernization of basic industries, promotion of modernization of high-tech industries, increasing the competitiveness of mass manufacturing industries (including processing of raw materials, metallurgy, chemistry, production of construction materials, car manufacturing, food industry) in order to rationalize the import and increase the export of processed products; development of small and medium business.

Despite the fact that support and stimulation are the essence of state regulation, the identification of these methods (in a number of regulatory acts and scientific sources) is not entirely justified. In our opinion, these methods differ by the principles of action, scope and objects of regulation, the forms and methods of regulation used, as well as by the criteria for assessing the effectiveness of the use.

The analysis of the legislative base allows drawing a conclusion that *state support* is the *support* of the implemented innovation activities, in the areas of scientific research, or by the types of economic activity (sectors) identified as state priorities for innovative development, i.e. it is assumed that the goals of the development of certain areas of science, technology and industries coincide with the goals of the state innovation development in general.

The Law "On Science and State Scientific and Technical Policy" provides for various forms of state support of innovation activities in the Russian Federation, including: the provision of relief for the payment of taxes, fees, customs charges, educational services, information and consulting support, the formation of demand for innovative products, financial security, targeted programs, provision of infrastructure and other forms.

A group of authors of a very serious study of innovation activities of various companies and demand for innovative products (Ivanov *et al.*, 2012) indicates the main support measures:

1. Tax (and equivalent) benefits
2. Innovative infrastructure
3. Direct state financing of innovative projects within the framework of state programs.

Tax Benefits

The legislation provides for a tax rate of 0 percent to the tax base determined by operations with shares, bonds of Russian companies, investment shares that are securities of the high-tech (innovative) economic sector (Federal Law of December 29, 2015 No. 396-FZ "On the Budget of the Russian Federation for 2016"). This measure is limited for most companies.

Innovative Infrastructure

By 2012, a number of development institutions operating in the innovation sphere were formed in the Russian Federation (Ivanova, & Akimenko, 2012):

1. State Corporation "Russian Corporation of Nanotechnologies" – Rosnano OJSC;
2. The Russian Venture Company (RVC) OJSC is both a state fund and a development institution.
3. The Fund for Promoting the Development of Small Forms of Enterprises in the Scientific and Technical Sphere is a state non-profit organization.
4. The Development Fund for the Center for Elaboration and Commercialization of New Technologies (Skolkovo Fund).

Based on the results of the assessment of the performance of the innovation infrastructure activity conducted in 2014, it was recognized as successful. At the same time, this form of state support has a number of drawbacks:

First, at present the criterion for assessing the performance of the activity is the cost of innovations, but not their effectiveness.

Secondly, this form of support significantly depends on the macroeconomic and political situation (for example, by the end of 2014 the investments from venture funds reduced by 61% compared to the beginning of the year, which was caused by economic sanctions).

Thirdly, the complexity of monitoring the directions of venture capital investments, which do not always correspond to government needs (for example, the bulk of venture capital (up to 70%), even in a favorable period (2013), was invested not in breakthrough technologies, but in e-commerce).

Fourthly, there is no access to support for small and medium mining enterprises from the Small Entrepreneurship Promotion Fund, since mining business (even when it is organized in the form of small enterprises) is not included in the list of activities falling under the action of the law "On the Development of Small and Medium Businesses in the Russian Federation".

Fifthly, the principle of supporting high-tech industries and priority scientific, technical and technological areas does not provide support for the companies of the mineral resources sector (except for fuel-and-energy and geologic exploration companies) with the help of development institutions.

Direct Government Funding

The main form of state support of innovation activities is the budget allocation from the federal budget in the framework of specific programs, according to the Innovation Development Strategy adopted by the Government of the Russian Federation.

Programs as a form of state support of innovation activities have certain benefits and drawbacks.

Benefits include the direct connection of the Program with the objectives of the state innovation policy, which allows concentrating budgetary funds, the possibility of coordinating state, branch and commercial interests, uniting the efforts of independent program participants (business entities of different management levels and ownership forms, public organizations, municipalities, etc.).

One of the most important areas of the innovation policy in the Russian Federation is the development and implementation of innovation development programs (IDP) by companies with state participation (Gershman *et al.*, 2015).

The list of companies with state participation implementing innovative development programs in 2016 in the mining industry includes the following companies: Gazprom OJSC, Gazprom Neft OJSC, Rosneft Oil Company OJSC, Zarubezhneft OJSC, Joint-stock Oil Company Bashneft OJSC, Public Joint-Stock Company ALROSA (Department of Strategic Development and Innovation, 2016).

At the same time, the drawbacks of the program-based form of support in the market conditions are as follows:

1. The lack of methods to accurately assess the effectiveness of the program, i.e. to compare the cost of its implementation with the results obtained (since the results can be social in nature),
2. Application of insufficiently grounded criteria for assessing the results of the Program (these can be various indicators)
3. The need to establish program management structures, develop regulatory and methodological support (due to the complexity and individuality of the Program),
4. As a rule, the long-term nature of programs based on forecasts that may not be justified,
5. The risk of "closing up", postponing the implementation or sequencing of the program due to budgetary deficits, structural adjustments in government bodies, external factors. For example, the share of R&D costs from budget funds in the total amount of financing in 2010-2012 was 80%, in 2013 – 88% (Analytical Center for the Government of the Russian Federation, 2014). In 2014-2015, a planned decrease in expenses of budgetary funds was 7-10%,
6. Excessive bureaucratization of the process of inclusion of projects in programs;
7. Overestimated state requirements to co-financing the projects included in the programs (interference in the activities of companies, increased requirements for projects, disclosure of information).

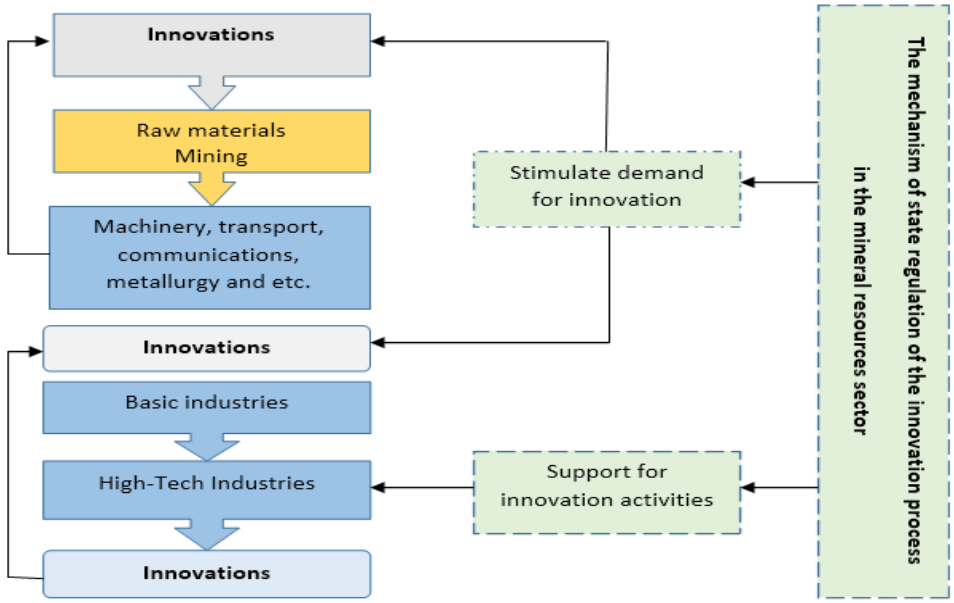
The state stimulation of innovation activities is a method of regulation, based on the motivational component of economic activity, involving *influencing* an object of regulation, which is the demand for innovations. The state stimulation is to create conditions for the development of the innovation market and stimulate the demand for innovative products.

Unlike the support (assistance) of innovation activities, the state's decision to create incentives for (have an influence on) the introduction of innovations should apply not only to the high-tech sector, but also to the basic sector, which is also a consumer of innovative products and provides high-tech and other basic industries with raw and other materials.

DISCUSSION

State regulation of the innovation activities in the conditions of Russia is a necessary condition for the successful development of innovation processes, carried out by combining two methods: support for innovation activities and stimulating the demand for innovation (Fig. 1).

Figure 1
THE MECHANISM OF STATE REGULATION OF THE INNOVATION PROCESS



In Russia, the state supports only those areas and areas of activity that are of high priority to it. In the USA, the priority areas of the technological development are alternative energy technologies, hybrid cars, energy storage systems, and "smart electrical networks". In Great Britain and China, these are new materials, bio-sciences, sensors and photonics, information and communication technologies.

In Germany, priority industries are those characterized by high competitiveness, social importance and great potential for the market growth (automobile industry, chemical products, pharmaceuticals, medicine, etc.) (Anokhin *et al.*, 2014).

In Finland, Sweden, Norway, the priority areas of the technological development of the mining industry are the creation of environmentally friendly, non-waste and safe technologies, corresponding to the "Green Mining" concept. In these countries an effective system of state and municipal support for innovation activities has been created.

Depending on the motivational component, the methods of negative (forced) motivation and methods of positive (incentive) motivation can be identified.

According to the authors (Rothwell, & Zegveld, 1981), demand is the most important and most effective tool (as opposed to subsidizing) that the government can use to stimulate innovation.

Currently, in the Russian Federation such demand is provided only by major companies with state participation (Yakushev, 2015).

The demand stimulation methods, which are based on forced motivation, may include: the adoption of directives, the introduction of new standards, rules, requirements and regulations in the design of enterprises and the product release. Such measures are of particular importance for the enterprises –sources of increased danger, which carry out the extraction and processing of mineral raw materials. For mining companies, such measures can increase the innovative activity to a certain extent.

An example is the transition to new quality standards for granite crushed stone produced by mining companies.

On February 15, 2015, the Technical Regulations of the Customs Union on Road Safety came into force. These Regulations were developed on the basis of the "Agreement on Common Principles and Rules for Technical Regulation" in Belarus, Kazakhstan and the Russian Federation as of February 15, 2010, the requirements of which are harmonized with a number of European Agreements on highways, road traffic and road construction.

The consequence of the adoption of the Technical Regulations was the need for all crushed stone producers to use European square-mesh sieves, respectively, producers are forced to acquire technologies of foreign companies – producers of crushing and screening equipment.

Another example is a significant increase in fees for the disposal of mining waste, which has served as a certain incentive to take measures on its reduction or recycling. However, in this case, a method of "negative motivation" was used in combination with measures to support mining companies in Murmansk, Sverdlovsk, Rostov, Kemerovo and other regions by including activities on waste reduction (recycling) into regional projects to eliminate the accumulated environmental damage, according to the State Program of the Russian Federation "Environmental Protection" for the period of 2012-2020" (Decree of the Government of the Russian Federation as of April 15, 2014 No. 326 (as amended on August 13, 2016) "On the Approval of the State Program of the Russian Federation "Environmental Protection" for the period of 2012-2020" (Federal Law No. 7-FZ "On Environmental Protection", 2002].

In the scientific literature there is an opinion that environmental problems and regulation through instructions/standards contribute to a more active development of innovations than, for example, R&D subsidizing (Palmberg, 2004).

The government order can be referred to the methods of state stimulation of the development of demand for innovation based on positive motivation (Kamenskikh, 2014). The process of government procurement takes place through the placement of a tender by the government, based on certain needs, and companies compete for it. Thus, the government order promotes the development of demand for innovative products and the increase of the creative potential of companies, which makes it more effective tool than the direct subsidization (Geroski, 2010).

Methods of positive motivation (indirect state regulation) include the methods aimed at forming a positive image of companies introducing innovations (this is especially relevant for environmental innovations), methods of disseminating the information on new technologies (exhibitions, conferences, advertising, i.e. methods promoting the spread of innovation). But the key point here is the allocation of an active coordinating center that performs the functions of an economic agent responsible for solving the task of innovation promotion (which is not yet in Russian practice).

CONCLUSIONS

State regulation of innovation activities in the Russian Federation is concentrated on priority research and scientific-technical areas and high-tech industries, which corresponds to global trends. State development programs (industry, targeted integrated, regional programs) are the main form of financial and organizational support. In the mineral resources sector, the geological exploration and fuel-and-energy complex are identified as the priority areas. At the same time, the problems are still as follows: low motivation for innovation activities and weak demand for innovation among the mineral resource industries, small and medium mining enterprises that are not included in the state support programs.

Therefore, stimulating the demand for innovation in mining companies, taking into account the motivational component, is also the task of state regulation of the innovation process.The methods used to stimulate the demand for innovation in Russia generally correspond to international practices, but, unlike them, they are of a disparate nature, due to the lack of an organizational structure that carries out, on a daily basis and on a professional basis, the activity aimed at stimulating the demand for innovation, and is responsible for the achievement of the objectives of this activity. This structure is an effective alternative to a set of disparate initiatives and actions (Foreign Practices Stimulating Demand for Innovation in Public Procurement and Procurement in Companies with Public Participation, 2015).

Taking into account the specifics of the activities of mining companies (technology, mining and geological conditions, location of enterprises, life cycle duration, a negative impact on the environment, etc.), the main methods of demand stimulation can be as follows:

1. Forced stimulation methods (an increase in requirements to the quality of products and technologies, reduction of environmental load, etc.). The standards of conformity of products and technology to the international requirements and regulations can serve as a specific tool.

2. Incentive stimulation methods:

- The government order for high-tech products,
- The formation of industry centers of coordination of innovation activities, the task of which is to ensure the promotion of innovation to the end user.

REFERENCES

Federal State Statistics Service of the Russian Federation. (2016a). *Dinamika postupleniya nalogov, sborov i inykh obyazatelnykh platezhei v konsolidirovannyi byudzhet Rossiiskoi Federatsii v 2010-2015 gg*. [The Dynamics of the Receipts from Taxes, Fees and Other Mandatory Payments in the Consolidated Budget of the Russian Federation]. Retrieved March 14, 2017, from http://www.gks.ru/free_doc/new_site/finans/fin210g.htm.

Ministry of Finance of the Russian Federation. (2016). *Konsolidirovannyi byudzhet Rossiiskoi Federatsii* [Consolidated Budget of the Russian Federation]. Retrieved March 14, 2017, from http://minfin.ru/ru/statistics/conbud/.

Federal State Statistics Service of the Russian Federation. (2016b). *Tekhnologicheskoe razvitie otraslei ekonomiki* [Technological Development of Economic Sectors]. Retrieved March 14, 2017, from http://www.gks.ru/wps/wcm/connect/rosstat_main/rosstat/ru/statistics/economydevelopment/#.

Federal State Statistics Service of the Russian Federation. (2016c). *Effektivnost' ekonomiki Rossii* [Efficiency of the Russian Economy]. Retrieved March 14, 2017, from http://www.gks.ru/wps/wcm/connect/rosstat_main/rosstat/ru/statistics/efficiency/#.

Demicheva, T.N. (2010). Sistema stimulirovaniya innovatsionnoi aktivnosti kak uslovie formirovaniya innovatsionnoi ekonomiki v Rossii [The System of Stimulation of the Innovative Activity as a Condition for the Formation of the Innovative Economy in Russia]. *Vestnik Nizhegorodskogo universiteta im. N.I. Lobachevskogo, 3*(2), 449-452.

Dezhina, I.G. (2016). Innovatsionnaya politika v Rossii: tendentsii, slozhnosti, perspektivy [Innovative Policy in Russia: Development, Challenges and Prospects]. *Zapiska analiticheskogo tsentra Observo, 12.* Retrieved March 14, 2017, from http://obsfr.ru/fileadmin/Policy_paper/PP_12_RU_Dezhina.pdf.

Zharikov, V.V., Zharikov, I.A., Odnolko, V.G., & Evseychev, A.I. (2009). *Upravlenie innovatsionnymi protsessami: uchebnoe posobie* [Management of Innovation Processes: Manual]. Tambov: Publishing House of Tambov State Technical University. (p. 180).

Medynsky, V.G. (2008). *Innovatsionnyi menedzhment: Uchebnik* [Innovative Management: Textbook] (pp. 168-173). Moscow: INFRA-M.

Hargadon, A. (2003). *How Breakthroughs Happen: The Surprising Truth About How Companies Innovate*. Boston.

Drucker, P.F., Christensen, C.M., & Govindarajan, V. (2013). *HBR's 10 Must Reads on Innovation*. Boston: Harvard Business Review. Retrieved March 14, 2017, from https://hbr.org/product/a/an/11363-PBK-ENG.

Drucker, P.F. (1985). *Innovation and Entrepreneurship: Practice and Principles*. Retrieved March 14, 2017, from http://www.untagsmd.ac.id/files/Perpustakaan_Digital_1/ENTREPRENEURSHIP%20Innovation%20and%20entrepreneurship.PDF.

Innovation and Entrepreneurship in a Global Economy. (n.d.). Retrieved March 14, 2017, from http://www.druckersociety.at/repository/scientific/Pearl.pdf.

Kravtsova, E.N., & Voronin, V.P. (2008). Innovatsionnaya deyatel'nost' predpriyatiya [Innovative Activity of an Enterprise]. *Kreativnaya ekonomika, 6*(18), 3-8. Retrieved March 14, 2017, from http://bgscience.ru/lib/3782/.

Batkovsky, A.M. (2012). Obshchaya kharakteristika innovatsionnoi deyatel'nosti ekonomicheskikh sistem [The General Characteristic of the Innovative Activity of Economic Systems]. *Ekonomicheskie otnosheniya, 1*(3), 3-9. Retrieved March 14, 2017, from http://bgscience.ru/lib/9853/.

Ivanov, D.S., Kuzyk, M.G., & Simachev, Y.V. (2012). Stimulirovanie innovatsionnoi deyatel'nosti rossiiskikh proizvodstvennykh kompanii: vozmozhnosti i ogranicheniya [Stimulation of the Innovative Activity of Russian Manufacturing Companies: Opportunities and Limitations]. *Foresight, 6*(2), 12-42.

Ivanova, K.M., & Akimenko, I.O. (2012). *Gosudarstvennaya podderzhka innovatsionnogo razvitiya* [State Support of Innovative Development]. Retrieved March 14, 2017, from http://www.rae.ru/forum2012/238/2770.

Gershman, M.A., Zinina, T.S., Romanov, M.A., Rudnik, P.B., Senchenya, G.I., & Shadrin, O.E. (2015). *Programmy innovatsionnogo razvitiya kompanii s gosudarstvennym uchastiem: promezhutochnye itogi i prioritety* [Innovative Development Programs for Companies with State Participation: Interim Results and Priorities]. Moscow: NRU HSE. (p. 128). Retrieved March 14, 2017, from https://www.rvc.ru/upload/iblock/537/201508_PIR.pdf.

Department of Strategic Development and Innovations of the Ministry of Economic Development of the Russian Federation. (2016). *Perechen aktsionernykh obshchestv s gosudarstvennym uchastiem, gosudarstvennykh korporatsii, gosudarstvennykh kompanii i federalnykh gosudarstvennykh unitarnykh predpriyatii, realizuyushchikh programmy innovatsionnogo razvitiya* [List of Government-Owned Joint-Stock Companies, Public Corporations, Public Companies and Federal State Unitary Enterprises That Implement Innovation Development Programs]. Retrieved March 14, 2017, fromhttp://economy.gov.ru/minec/about/structure/depino/2015070303540.

Analytical Center for the Government of the Russian Federation. (2014). *Ezhegodnyi monitoring sredstv, vydelennykh iz federal'nogo byudzheta na finansirovanie NIOKR (v tom chisle po prioritetnym napravleniyam innovatsionnogo razvitiya Rossii). Analiticheskii otchet* [Annual Monitoring of Funds Allocated from the Federal Budget for R&D Financing (Including on Priority Areas of the Russia's Innovative Development). Analytical Report]. Retrieved March 14, 2017, from http://ac.gov.ru/files/attachment/4879.pdf.

Anokhin, R.N., Bobylev, G.V., Valieva, O.V., Zhdan, G.V., Kravchenko, N.A., Kuznetsov, A.V., & Suslov, V.I. (2014). *Mirovoi opyt stimulirovaniya sprosa na innovatsii* [World Experience in Stimulating the Demand for Innovations]. Retrieved March 14, 2017, from http://www.nsu.ru/rs/mw/link/Media:/33653/2014_2_7.pdf.

Rothwell, R., & Zegveld, W. (1981). *Industrial Innovation and Public Policy: Preparing for the 1980s and the 1990s*. London: Frances Pinter. (p. 356).

Yakushev, V. (2015). *Gosudarstvennoi podderzhke innovatsionnoi deyatel'nosti v Rossii nuzhen novyi impuls* [State Support of Innovation Activities in Russia Needs a New Impulse]. Retrieved March 14, 2017, from http://www.nanonewsnet.ru/news/2015/gubernator-tyumenskoi-oblasti-prizval-stimulirovat-spros-na-innovatsii.

Federalnyi zakon ot 10.01.2002 No. 7-FZ (red. ot 03.07.2016) "Ob okhrane okruzhayushchei sredy" (s izm. i dop., vstup. v silu s 01.01.2017) [Federal Law No. 7-FZ (as amended on July 3, 2016) "On Environmental Protection" (effective since January 1, 2017)]. (2002, January 10). Retrieved March 14, 2017, from http://www.consultant.ru/search/?q=+%D0%9B%D0%B8%D0%BA%D0%B2%D0%B8%D0%B4%D0%B0%D1%86%D0%B8%D1%8F+%D0%BD%D0%B0%D0%BA%D0%BE%D0%BF%D0%BB%D0%B5%D0%BD%D0%BD%D0%BE%D0%B3%D0%BE.

Palmberg, C. (2004). The Sources of Innovations – Looking beyond Technological Opportunities. *Economics of Innovation and New Technology, 13*(2), 183-197.

Geroski, P.A. (2010). Procurement Policy as a Tool of Industrial Policy. *International Review of Applied Economy, 4*, 182-198.

Kamenskikh, M.A. (2014). Evropeiskii opyt stimulirovaniya innovatsionnogo sprosa na gosudarstvennom urovne [European Experience in Stimulating Innovative Demand at the State Level]. *Rossiiskii vneshneekonomicheskii vestnik, 11*, 103-108. Retrieved March 14, 2017, from http://www.rfej.ru/rvv/id/B00425B92/$file/103-108.pdf.

THEORY AND PRACTICE OF PLANNED-MARKET APPROACH TO THE DEVELOPMENT OF REGIONAL DAIRY-GROCERY SUBCOMPLEX

Lidiya A. Ovsyanko, Krasnoyarsk State Agrarian University
Nikolai V. Grigoriev, Krasnoyarsk State Agrarian University
Antonina A. Kolesnyak, Krasnoyarsk State Agrarian University
Sergey A. Shelkovnikov, Novosibirsk State Agrarian University
Maxim S. Vyshegurov, Novosibirsk State Agrarian University
Irina S. Podduevanovosibirsk, State Agrarian University

ABSTRACT

Current scientific research contains evidence-based suggestions and practical recommendations on developing planned-market approach to the development of dairy-grocery subcomplex in the Krasnoyarsk Territory. The authors reviewed the fundamental principles of state regulation in development of dairy-grocery subcomplex on the basis of planned-market approach, generalized the concept of state management of the dairy-grocery subcomplex extension, and studied distribution and specialization in the dairy-grocery subcomplex in the Territory. Effective management of the economy in the agricultural sector is impossible without the use of plan based evaluation methods to determine the line of future activities, design possible changes in the market and other spheres of activity. In this regard the authors proved the mechanism of providing comprehensive support for the development of the subcomplex and proposed the methodology of subsidizing milk production based on recoupment of expenses owing to productive efficiency with due account for the level of reproduction. The proposed mechanism will provide an opportunity for agricultural producers and the state to plan a phased increase in the productive efficiency of livestock and the quality of milk produced. The consolidation of state support measures in milk production and provision of subsidies aimed at increasing milk production in the region laid the basis to estimate projected development of dairy-grocery subcomplex in Krasnoyarsk Territory with due consideration of the implementation of the proposed recommendations for the period of 2017-2022.

Keywords: the Krasnoyarsk Territory, dairy-grocery subcomplex, planned-market approach, subsidization, recoupment of expenses.

INTRODUCTION

Currently, milk and dairy products market is one of the most developing and promising areas of agricultural production. The country's food security, population's health and quality of life are largely dependent on the development of milk production and processing based on innovative development in the dairy industry, preserving natural resources, livestock, and employment policies of the rural population. Russia has all the things needed for the development of dairy-grocery subcomplex including farmland, material and technical base, as well as scientific and human resources [6].

However, the Russian Federation and, in particular, the Krasnoyarsk Territory are not provided with the milk consumption at a level corresponding to medical standards (just 78%). At that, livestock population is reduced annually, the proportion of milk and dairy products imports increases, while state support reduces, and the profitability of the industry decreases [13]. Modern state regulation of dairy industry aims at subsidizing the production of 1 kg of milk, or part of the lending interest rate on investment loans. This approach, focused primarily on the market mechanism, does not provide the necessary conditions for strategic development of the industry [8]. This is possible only through the formation of planned-market development mechanism of dairy-grocery subcomplex of the region, where the achievement of necessary production and consumption levels are defined and provided by the state.

In this regard, elaborating issues related to development prospects of dairy-grocery subcomplex becomes quite urgent. This involves the use of planned-market mechanism, focused on state encouragement of production, processing, and consumption of milk and dairy products within the given parameters based on the use of innovative technologies.

In Russian economic science, the theoretical basis for the development of dairy-grocery subcomplex in market conditions is in a formative stage. Theoretical and methodological issues related to the formation of planned-market development mechanism of subcomplexes of the agricultural sector of the region and transition of agricultural organizations to the planned-market economy still remain unresolved. The present thesis research is focused on forming scientific approaches addressed the issues raised.

A significant contribution to the study of the current status and issues of state support of agriculture, and particularly, milk production, has been made by such prominent scientists as Altukhov A.I., Baryshnikov N.G., Bespakhotny, G.V., Veklenko V., Goncharov V., Nechaev, V. I., Semin A.N., Serkov A.F., Tkach A.V., and Ushachev I.G.. Their works served the scientific basis for current research [7, 9, 10, 12, 16-19].

METHODOLOGY

The aim of the present study is the development of theoretical provisions and practical recommendations for planned-market approach to the development of regional dairy-grocery subcomplex.The target of the research included economic and organizational-managerial relations arising in the course of development of dairy-grocery subcomplex.The object under observation included agricultural organizations in the region, specializing in milking herd operations. The research was carried out using the abstract-logical, monographic, economic-statistical, and calculation-constructive methods. By applying the abstract-logical method, we formulated the fundamental principles of state regulation of dairy-grocery subcomplex development based on planned-market approach, which are the basis for the functioning of the entire system of state regulation of industries and subcomplexes in agricultural sector.

Using the statistical research method we revealed the dynamics of the main indicators characterizing the development of milking herd breeding branch in the Krasnoyarsk Territory, as well as production and processing organizations siting and specialization. Based on the developed economic-statistical models, we determined milk yields, providing a recoupment of expenses in the context of climatic zones.The monographic method of research was used to substantiate the need for providing comprehensive subsidy for milk production development in the region.The application of the calculation-constructive method allowed determining the dairy-

grocery subcomplex growth prospects in the Krasnoyarsk Territory based on the proposed milk production subsidizing methodology.

RESULTS

1. The authors clarify the fundamental principles of state regulation of dairy-grocery subcomplex development based on planned-market approach, which, as suggested by the authors, includes the following principles: development according to plan, subsidiarity, providing mono-subsidy, innovativeness, sufficiency of domestic products, priority of natural quality, parity income for producers, processors and distributive trade, and recoupment of expenses owing to productive efficiency. These principles should lay the basis of state regulation of dairy-grocery subcomplex in the framework of planned-market approach.

2. In terms of developed economic and statistical models the authors have revealed that the total costs to maintain dairy herds are justified at milk yields ranging from 2000 to 5200 kg/head, while the maximum rate of recoupment of production costs is achieved at productive efficiency ranging from 5500 to 8000 kg/head depending on the climatic zone. These levels are proposed as targets for state support. The efficiency of milk production at higher levels is reduced due to significant increase in the cost of milk production.

3. The authors propose methodology for the provision of state support to agricultural organizations in the region, which is giving mono-subsidy depending on the planned productive efficiency and level of reproduction. These measures will enable the agricultural producers and the state to plan for a phased increase of livestock productive efficiency and milk quality. This mechanism will allow agricultural enterprises of the region to achieve yields in the amount of 7560 kg/head by 2022, and produce in total 340 kg of milk per statistically average inhabitant of the region.

DISCUSSION

4.1The state regulation principles in development of dairy-grocery subcomplex

Currently, the leading scientists working on the development of agriculture are increasingly turning to lap experience of former top-down (planned) approach in economy development. Planned economy, emerged in 1917, gave great results, however gaining great impetus, deprived the producers of independence and initiative, hindering the stimulation of production growth. At that, directivity, targeting, and urgency were the basic principles of the planned approach [7].

The main principle of the modern market economy, along with the diversity and the use of advanced technologies, is nonintervention of the state. At that, the state's participation in the development of industries and subcomplexes in agricultural sector is primarily compensatory in nature and implemented through subsidies for reimbursement of part of production costs and interest rates on loans depending on the budgetary opportunities. This largely determines the inertia of the industry that is unacceptable in modern conditions when solving the problem of ensuring food security of the state [17, 19].

According to the authors, the formation of the planned-market approach to the development of industries and subcomplexes in agricultural sector will contribute to overcome the inertial development of agriculture. This approach, as suggested by the authors, should be

understood as the combination of market principles of management and elements of state involvement that should consist in making available planned production volumes or a certain rate of their growth to particular producer in order to ensure food security of the state. This involves reimbursement of part of expenses through the provision of consolidated support to ensure the orderly development of production and its profitability.

Based on the principles of agricultural production development at the present stage, we have specified the following fundamental principles of state regulation of dairy-grocery subcomplex development based on planned-market approach:

The principle of planning Involves a combination of market independence of economic entities in the definition of product volumes and types, as well as state regulation to ensure certain volumes of production based on production planning and bringing state order to specific producer, ensuring a certain level of profitability following on from the public needs and food security of the state.

The principle of subsidiarity suggests that development plans should be drawn up for each agricultural enterprise given the challenges facing at all levels of agricultural sector management.

The principle of providing mono-subsidy consists in consolidation of support measures into a single support amount (per 1 kg or 1 hectare) that will increase the amount of direct support, as well as enhance the efficiency of the use of budgetary funds, since economic entities will independently determine the direction of spending of funds in order to fulfill the state order.

The principle of innovativeness consists in encouragement of producers to use in the agro-industrial complex technical, technological, organizational, information and communication innovations while achieving planned performances and ensuring a certain level of profitability.

The principle of sufficiency of domestic production means that the total of output produced by Russian agricultural producers must be sufficient to meet the needs of consumers and end processors.

The principle of priority of the natural quality means that when supporting production, the state must give preference to high-quality products manufacturers as well as processors, which use natural raw materials (without nutritional supplements) in the manufacture of their products.

The principle of parity income of producers, processors and distributive trade means that the government should take measures to regulate producers' prices as well as marketing margins of processors and distributive trade on socially significant products.

The principle of recoupment of expenses through productive efficiency means that providing support should ensure the profitability of producers at a level ensuring the expanded reproduction (30% or more) to cover all production costs of gross output, its processing and distribution.

4.2. The concept of state development management of the of dairy-grocery subcomplex

Because of inherent versatility, significance, and complexity, the dairy-grocery subcomplex needs to be developed further based on scientifically grounded concept. In the framework of the planned-market approach, the main tool to develop the concept should be a system of different level plans tailored taking into account the accumulated experience and identified shortcomings in the development of the subcomplex [18]. Based upon generalization of challenges facing milk producers and processors, we elaborated a system of concepts to define the purpose and tasks of

further development of dairy-grocery subcomplex with due consideration of the fundamental principle of plannin (Fig. 1).

Figure 1
THE CONCEPT OF STATE DEVELOPMENT MANAGEMENT OF THEDAIRY-GROCERY SUBCOMPLEX

The main problems in the development of the dairy product subcomplex

The low level of breeding	Weak fodder base	Low level of mechanization, dependence on foreign equipment	Low innovation and investment activity	Lack of developed infrastructure in rural areas and affordable housing	Low wages and as a consequence weak motivation to work and retention of personnel	Low quality of milk, lack of independent laboratories	Inefficient pricing	Weak state support and lack of state control	Decreased consumption of milk and dairy products

Implementation of the planned-market approach

The goal: to achieve intensive development of the subcomplex, guaranteeing self-sufficiency in milk and dairy products, efficiency and competitiveness

Tasks

Forming domestic market for productive livestock	Modernizing and strengthening material and technical base	Attracting young specialists to the industry and providing them social support	Encouraging milk and dairy products consumption

In the conditions of free competition, agriculture is unable to have returns comparable to profitability from investments in other sectors; besides, the agricultural sector has a low turnover of funds, etc. All this indicates the necessity of state development regulation of agriculture. At the same time, effective management is impossible without the use of planned methods which allow determining the line of future activities, designing possible changes in the market and other spheres of activity. The key document of planned policy, which establishes forecast guidelines for the development of agriculture in the region is the Decrees of the Russian Federation Government "State Program for Development of Agriculture and Regulation of Agricultural Commodities Markets in 2013-2020" and the long-term target program "Development of Agriculture and Regulation of Agricultural Commodities Markets in the Krasnoyarsk Territory" for 2013-2020 [15].

Table 1
THE RESULTS ACHIEVED IN SOCIO-ECONOMIC DEVELOPMENT OF THE KRASNOYARSK TERRITORY IN 2014

Indicator	2013	2014		
		planned	actual	variance
Index of agricultural production (in comparable prices), %	100.5	101.6	97.7	-3.9
including:				
- crop raising	104.5	100.2	99.5	-0.7
- cattle raising	97.2	102.9	96.0	-6.9
Population of cows in farms of all categories, thousand animals	168.5	175.0	168.6	-6.4
Milk production in farms of all categories, thousand tons	708.1	734.8	724.5	-10.3
The proportion of regional production of milk and dairy products in total volume, %	76.6	85.6	94.4	+8.8
The consumption of milk and dairy products, kg/person/year	249	253	250	-3.0
Average monthly nominal accrued wages of workers employed in agriculture, rubles	14720	15761	15847	+86
Average monthly nominal accrued wages of employees at enterprises of food and processing industry, rubles	19483	20820	19872	-948
The total program funding from the regional budget, mln rubles	1738.7	2300.0	1399.4	-900.6
The cost effectiveness of agricultural organizations, %	14.1	15.0	14.7	-0.3

* according to the collections "Agro-industrial complex of the Krasnoyarsk Territory in 2009-2014" [1-5]

Parameters specified in the program are abstract since they do not serve as a guide to action for a particular agricultural enterprise (Table 1).

The region is characterized by non-fulfillment of some program indicators for a number of parameters that may be due to overestimation of the forecasted targets or insufficient resources. It can also be noted that indicators lack such parameters as the price of agricultural products and products of industrial production, used in agricultural sector, the level of lending interest rates, etc. In turn, these parameters determine development conditions of agricultural production.

In modern conditions, organizational and economic essence of planning must be manifested in the form of management, which is the definition of the parameters and measures that contribute to achieving the goals set for a specific period. At that, the planning should be advisory in nature and be implemented at all decision-making levels, taking into account the interaction between them. During the transition to the planned-market approach, planning is combined with self-regulation. Here the independence of agricultural producer in the choice of its development course and the definition of the proper planned targets serve as the main basis. We espouse the view of some researchers that the economic processes in agriculture are more evolutionary in nature [9, 10]. This is due to the fact that agriculture is traditional and

conservative industry, which is based on labor and psychology of workers. Therefore, the forecasting the development of dairy-grocery subcomplex should be focused on the strategic development of the industry in the context of qualitative and quantitative parameters, while planning should include a system of plans tactical in nature (Fig. 2).

Figure 2
FORECASTING AND PLANNING IN THE DAIRY-GROCERY SUBCOMPLEX

Forecasting	
Qualitative forecasts: economic relations labor relations social relations managerial relations	Quantitative forecasts: production processing distribution consumption economic and financial indicators
System of plans	
herd reproduction plan costs forecast resources' provision plan financial support plan siting and specialization plan production plan product processing plan implementation and consumption plan innovation implementation plan	

In terms of milk production, in the rating of constituent entities of the Siberian Federal District, the Krasnoyarsk Territory takes the second place. The average number of cows in the region during the period from 2004 to 2014 was reduced by15.7%. Despite this, milk production has increased by 10.1% due to the growth in productive efficiency of milking herd by 37.3%. All this testifies the transition to the competitive enhancement of milking herd breeding.

4.3. Siting and specialization in the dairy-grocery subcomplex of the Krasnoyarsk Territory

Rational siting is an important factor for effective planning of productive efficiency and production in milking herd operations. Milk production covers almost the whole Krasnoyarsk Territory. Milk production in the region takes place in all climatic zones (Eastern, Western, Central, Southern, and Northern) by agricultural organizations, family-operated farms, and peasant (farmer) holdings.

Traditionally, leading role in the milk production is occupied by agricultural organizations. Although the private farms in the Territory account for 48.4% of total milk produced, agricultural organizations serve the basis for existence and development of small farms. Due to the vast extent of territory from north to south, the uneven distribution of the population, and the predominance of urban population, the level of specialization in the context of climatic zones, taking into account various factors, is significantly different. Cow population and milk production is concentrated mainly in three climatic zones: Eastern, Western, and Southern (Table 2). The provision of milk in these zones exceeds the level of medical standards, and specialization ratio here is greater than 1. A large proportion of the population, namely

48.4% resides in the Central zone. Therefore, per capita milk production in this zone is minimal. The agriculture in the Northern zone of the region is less developed that is primarily due to the climatic conditions.

In each of the three zones leading in the production of milk, we can select areas that combine advanced agricultural organizations, specializing in the milk production. Approximately 50% of the milk produced in the region mainly by agricultural organizations, is processed by milk processing plants predominantly into whole-milk products such as curd and cream cheese products, processed liquid milk, sour cream and liquid creamers, and fermented-milk products. Thus, in 2014, the Krasnoyarsk Territory has produced 329.4 thousand tons of whole-milk products (recalculated to milk), 4.1 thousand tons of cheese and curd, and 3.3 thousand tons of butter. At that, the greater

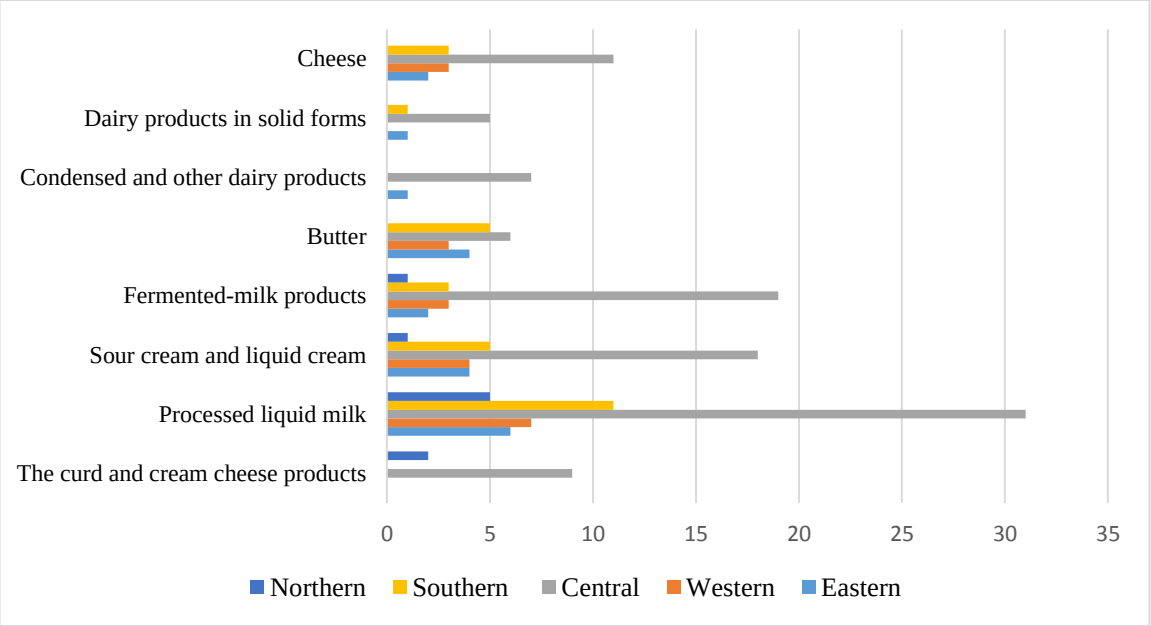
Table 2
SITING OF MILK PRODUCTION IN THE VARIOUS CLIMATIC ZONES OF KRASNOYARSK TERRITORY IN 2014

Indicator	Zone					Total in the Territory
	Eastern	Western	Central	Southern	Northern	
The annual average number of cows, thousand heads	43.4	49.0	24.0	42.5	9.7	168.6
Percentage in terms of annual average livestock, %	25.7	29.1	14.2	25.2	5.8	100
Total milk production, thousand tons	194.6	206.4	106.0	180.9	36.6	724.5
Percentage in terms of gross output, %	26.9	28.5	14.6	25.0	5.0	100
Dairy cows productive efficiency, kg/head	4633.8	4362.2	4566.7	4406.5	3780.0	4446
including in the agricultural organizations, kg/head	**5073**	**4883**	**4443**	**4757**	**3172**	**4813**
Per capita production of milk, kg	500.9	533.0	76.6	762.7	79.3	253.4
Percentage of the Territory's population, %	14.4	14.3	48.4	8.3	14.6	100
Specialization ratio	1.98	2.10	0.30	3.01	0.31	1.00

***** according to the collections "Agro-industrial complex of the Krasnoyarsk Territory in 2009-2014" [1-5]

part of the milk produced in the region is processed in milk processing plants located in the Central zone (Fig. 3). Primarily, this is "Milko" dairy plant and "Wimm-bill-Dann" OJSC, which account for 70% of milk processing in the region.

Figure 3
THE NUMBER OF ORGANIZATIONS PRODUCING DAIRY PRODUCTS IN VARIOUS NATURAL-CLIMATIC ZONES OF THE KRASNOYARSK TERRITORY.



The principle of ensuring the recoupment of costs through productive efficiency, stated earlier, should have a great importance in the siting of milk production. In order to identify the levels of yields providing a payback of costs for dairy herd management, we carried out correlation and regression analysis for five zones for 2014. As a result we have obtained five regression equations:

Eastern zone

$$y=0.138689305+0.000464978x_1-0.0000000441808(x_1)^2-2.178106628x_2+2.129037307(x_2)^2+0.0714561x_3-0.006358141(x_3)^2 \quad (1)$$

Western zone

$$y=1.588034701-0.0000341423x_1+0.00000000814655(x_1)^2+3.718435141x_2-1.068747982(x_2)^2+0.068550776x_3-0.005744166(x_3)^2 \quad (2)$$

Central zone

$$y=-1.799915809-0.000341702x_1+0.00000000814655(x_1)^2+6.56307376x_2-0.0000000233337(x_2)^2-0.104936482x_3+0.005582712(x_3)^2 \quad (3)$$

Southern zone

$$y=2.067935117+0.0000619206x_1-0.00000000690666(x_1)^2-4.429986641x_2+3.4009971(x_2)^2+0.003846429x_3+0.000982013(x_3)^2 \quad (4)$$

Northern zone

$$y=17.6359996-0.000688453x_1+0.000000119504(x_1)^2-39.53491921x_2+23.67724121(x_2)^2-0.037196617x_3+0.014885915(x_3)^2 \quad (5)$$

where y_2 is the recoupment of expenses, x_1 is the annual average yield of milk per 1 cow, x_2 is the level of marketability of milk, x_3 is the number of milking herd per 100 ha of agricultural land.

Using these equations, we identified the parameters which are needed to be guided in the development of the industry (Table 3).

Table 3
PARAMETERS OF DAIRY-GROCERY SUBCOMPLEX DEVELOPMENT IN THE KRASNOYARSK TERRITORYTAKING INTO ACCOUNT THE RECOUPMENT OF EXPENSES ON MILK PRODUCTION BY INCREASING PRODUCTIVE EFFICIENCY OF COWS

Indicator	Natural and climatic zone				
	Eastern	Western	Central	Southern	Northern
Annual average productive efficiency ensuring the recoupment of expenses, kg/head	3000	2000	2800	2300	5200
The ratio of the maximum possible parameters:					
- annual average productive efficiency, kg/head	**5500**	**8000**	**8000**	**6000**	**5500**
- recoupment of expenses	1.21	1.30	1.47	1.21	1.18
Planned milk production, thousand tons	230	350	180	240	52

Due to the fact that the level of milk production in the region does not meet the needs of the population in terms of medical standards, in our opinion, it is necessary to increase milk production. The group analysis has revealed that in every zone there are organizations, which allow increasing production output. Due to the reduction in the number of agricultural organizations from year to year, we have determined the maximum possible milk production in the region by increasing its overall production exactly in such organizations.

4.4. Milk production subsidizing methodology

To achieve the development parameters of the industry, it is necessary to review the subsidizing methodology of milk production and processing in the region, using planned-market approach. In 2014, in the structure of state funding of the livestock industry, subsidies for co-financing of expenditure commitments of constituent entities of the Russian Federation, related to the reimbursement of part of expenses of agricultural producers per 1 liter (kg) of sold milk, amounted to 19%. At that, the terms for providing state support include the follows [11]:

1. Inclusion of regional entities of agribusiness complex applying for state support into the register.

2. Availability of concluded agreement with the regional Ministry of Agriculture on providing state support and the execution of this agreement.

3. The absence of ongoing bankruptcy and liquidation procedures with regard to the applicant in accordance with applicable law.

4. Preservation of cow population in the reporting period in comparison with the population as of January 1 of the previous year or January 1 of the current year in the event that the own cattle population as of January 1 of the previous year was absent (this requirement does not apply in case of the reduction in own livestock encountered in emergency situations associated with natural disasters and epizootics of cattle).

5. Ensuring the productive efficiency of dairy cows during the previous year not less than 2400 kg or more per forage-fed cow (the requirement does not apply to peasant (farmer) farms and individual entrepreneurs having status of agricultural producers).

6. Conducting study of prepared fodder quality and nutritional value before December 1 of the previous year (the requirement does not apply to peasant (farmer) farms and individual entrepreneurs having status of agricultural producers)

7. The availability of specialists with higher or secondary zootechnical or veterinary education.

8. Payroll payment within the terms established by internal regulations, collective agreement or employment contract (the requirement does not apply to peasant (farmer) farms and individual entrepreneurs having status of agricultural producers).

9. Ensuring the quality of sold milk at a level not less than the first grade.

Table 4
THE RELATIONSHIP BETWEEN COSTS AND PRODUCTIVE EFFICIENCY IN DAIRY FARMING OF THE REGION

Type of reproduction	Productive efficiency, kg/head	Number of organizations in the group	Weighted-average costs for the dairy herd management, thousand rubles	Weighted-average costs for increase in productive efficiency in 500 kg/head, thousand rubles	Recoupment of production costs
Simple	below 2000	3	5943.3	2915.0	0.8
	2000-2500	11	10115.0	4171.7	0.9
	2500-3000	14	17047.8	6932.8	0.94
	3000-3500	20	26106.9	9059.1	1.00
Extended	3500-4000	7	31784.3	5677.4	1.12
	4500-4000	21	55030.5	23246.2	1.14
	4500-5000	10	66057.8	11027.3	1.15
	5000-5500	9	103383	37325.2	1.15
Innovative	5500-6000	9	139729	36346	1.19
	6000-6500	6	150725	10996	1.33
	6500-7000	2	224256	73531	1.70
	over 7000	2	248722.8	24466.8	1.30

Also, since 2011, subsidies from the regional budget are provided depending on natural climatic conditions.

Diverse courses of agriculture development [20] indicated in the federal law "On development of agriculture" contributed to the emergence of various support measures. This in turn helps to reduce the amount of direct subsidies that complicates the objectivity of assessing the level of subsidization. In addition, a large number of support areas leads to increased paperwork, while the lack of support for organizations with low productive efficiency does not

contribute to efficiency increase in the agricultural sector. Therefore, we propose to consolidate support measures for agricultural producers by providing systematically planned support, which is a single amount of support to dairy producers determined in accordance with the planned indicators of the sector. It is expected to consolidate the following measures into a single amount of support for milk production in the region: subsidies for co-financing of expenditure commitments of constituent entities of the Russian Federation related to the reimbursement of part of expenses of agricultural producers per 1 liter (kg) of sold milk; subsidies to support livestock breeding; subsidies to support livestock products; subsidies to support the delivery of seeds for cultivation of fodder crops in the Far North and equivalent areas, including crop production on low-yielding lands; subsidies to co-financeexpenditure commitments of constituent entities of the Russian Federation related to compensation of part of the lending interest rate on short-term credits (loans) on the development, processing, and distribution.

In modern conditions, the development of dairy-grocery subcomplex should occur through stepped-up pace, i.e. the gross yield should be increased while preserving the number of cows. This
can be achieved through high productive efficiency. To identify milking herd productive efficiency and its growth depending on the costs we carried out the following grouping (Table 4).

We have revealed direct dependence between the level of milk yields and costs of agricultural organizations for the milking herd management. Summarizing the obtained results, the authors proposed to improve the efficiency of shelf-grocery subcomplex by providing subsidies to all milk producers in the form of comprehensive support to increase productive efficiency. The following formula was proposed to calculate the subsidies that provide gains in milk yields:

$$S_{ipf} = C_{ipf} \times (C_{rpc} - C_{arpc}) \quad (6)$$

where C_{ipf} – is the planned costs, ensuring the increase in productive efficiency of dairy herd (thousand rubles), C_{ipf} – is the recoupment of production costs providing the appropriate type of reproduction (1.3 – simple, 1.5 – advanced, and 1.7 – innovative reproduction), C_{arpc} – is the actual recoupment of production costs.

Therefore, the consolidation of state support measures in milk production and subsiding policy targeted to increase milk yields in the region will contribute to the development of dairy-grocery subcomplex based on more complete use of the resource potential. It will also allow using budget funds more efficiently and monitoring their use.

4.5. Projected growth of dairy-grocery subcomplex in the Krasnoyarsk Territory

Based on designed strategic plans for the development of dairy-grocery subcomplex in the Krasnoyarsk Territory [14, 15] as well as the regional target program "Development of milking herd breeding in the Krasnoyarsk Territory for the period of 2017 – 2022", the authors have estimated production level of milk and main dairy products in the region for the period from 2017 to 2022 (Table 5).

Table 5
PRODUCTION FORECAST OF MILK AND MAIN DAIRY PRODUCTS IN THE KRASNOYARSK TERRITORYAT COMPETITIVE ENHANCEMENT OF THE MILK SUBCOMPLEX FOR THE PERIOD FROM 2017 TO 2022, THOUSAND TONS*

Targets	Year					
	2017	2018	2019	2020	2021	2022
Annual average milk yield, kg/head	5210	5680	6150	6680	7030	7560
Total milk production, thousand tons	875.3	954.2	1033.2	1122.2	1181.0	1270.1
Production of butter, thousand tons	5.5	6.5	7.5	8.0	8.5	10
Production of cheese and curd, thousand tons	5.8	7.5	8.5	9.5	10.8	12
Production of dairy products, thousand tons	481.6	572.5	620.0	729.3	826.7	952.6
Supply of milk and dairy products per year, kg/person	260	280	300	310	320	340

* - calculated by the authors

Over the long term (2017-2022) it is planned to bring average milk yields to 7560 kg/head, while gross output of milk – to 1270.1 thousand tons. It is also planned to increase the share of milk processing up to 75%, while the milk supply to population – to 340 kg/person.

The projected increase in the cost of total milk production (in comparable prices of 2014) by 2022 will amount to 13.5 bln rubles, or 221% as compared to 2014. It is planned to increase the level of state support of the milking herd operations (in comparable prices of 2014) to 6.0 bln rubles that is 15 times higher than that in 2014, as well as to increase recoupment of production costs in dairy farming to 1.5% as compared with an estimate of 2014, which was 1.12% (Table 6).

In the context of identified growth opportunities in production of milk and dairy products in the region, and the significance of the subcomplex to ensure food security of Russia, it is quite possible that the Krasnoyarsk Territory may find its niche not only among constituent entities of the Siberian Federal District, but also become an exporter of dairy products to other regions. Thanks to the proposed measures of state regulation of planned-market development of dairy-grocery subcomplex in the Krasnoyarsk Territory, which are based on fundamental and specific principles, production of milk and dairy products in the region will reach a new qualitative level.

Table 6
TARGETS FOR THE DEVELOPMENT OF DAIRY-GROCERY SUBCOMPLEX IN THE KRASNOYARSK TERRITORY FOR THE PERIOD OF 2017-2022 TAKING INTO ACCOUNT IMPLEMENTATION OF THE PROPOSED RECOMMENDATIONS *

Targets	Year					
	2017	2018	2019	2020	2021	2022
The amount of state support, mln rubles	2100	2600	3700	4500	5200	6000
The cost of gross milk production, bln rubles	**6.2**	**7.1**	**8.3**	**9.5**	**11.0**	**13.5**
Production index to the level of 2014	1.2	1.32	1.43	1.55	1.63	1.75
Recoupment of production costs	1.16	1.18	1.2	1.25	1.4	1.5

*calculated by the authors

CONCLUSION

1. In the current context, the development of dairy-grocery subcomplex requires the use of planned-market approach with regard to industries and subcomplexes of agricultural sector, which, as proposed by the authors, are understood as the combination of market principles of economy management and elements of state participation. State involvement consists in bringing the planned production volumes or a certain rate of production growth to particular producers based on the objectives of ensuring food security of the state. At that, state reimburses part of expenses through the provision of consolidated support to ensure the orderly development of production and its profitability. The authors propose state regulation of dairy-grocery subcomplex development on the basis of planned-market approach, which includes the following principles: development according to plan, subsidiarity, providing mono-subsidy, innovativeness, sufficiency of domestic products, priority of natural quality, parity income for producers, processors and distributive trade, and recoupment of expenses owing to productive efficiency.
2. The average number of cows in the region during the period from 2004 to 2014 was reduced by 15.7%. Despite this, milk production has increased by 10.1% due to the growth in productive efficiency of milking herd by 37.3%. All this testifies the transition to the competitive enhancement of milking herd breeding. Milk production in the region takes place in all climatic zones (Eastern, Western, Central, Southern, and Northern) by agricultural organizations, family-operated farms, and peasant (farmer) holdings. A larger proportion of the milk produced in the region is processed by processing plants located in the Central area. Primarily, this is "Milko" dairy plant and "Wimm-bill-Dann" OJSC, which account for 70% of milk processing in the region.
3. In terms of developed economic and statistical models the authors have revealed that the total costs to maintain dairy herds are justified at milk yields ranging from 2000 to 5200 kg/head, while the maximum recoupment of production costs is achieved at productive efficiency ranging from 5500 to 8000 kg/head depending on the climatic zone. These levels are suggested as a guide for state support of milk production.
4. It is proposed to consolidate support measures for agricultural producers by providing systematically planned support, which is a mono-subsidy. It is expected to consolidate the following measures into a single amount of support for milk production in the region: subsidies for co-financing of expenditure commitments of constituent entities of the Russian Federation related to the reimbursement of part of expenses of agricultural producers per 1 liter (kg) of sold milk; subsidies to support livestock breeding; subsidies to support livestock products; subsidies to support the delivery of seeds for cultivation of fodder crops in the Far North and equivalent areas, including crop production on low-yielding lands; subsidies to co-finance expenditure commitments of constituent entities of the Russian Federation related to compensation of part of the lending interest rate on short-term credits (loans) on the development, processing, and distribution.
5. The authors propose to use subsidization methodology of milk producers (6), which is based on the principle of recoupment of expenses owing to productive efficiency, i.e. the implementation of support should ensure producers' profitability at the level, providing the expanded reproduction (simple reproduction at 30%, advanced reproduction at 50%,

and innovative reproduction at 70%) to cover all production costs of gross output of milk, its processing, and distribution.

6. Given the planned-market approach to the development of dairy-grocery subcomplex, it is planned to bring annual average yields over the long term (2017-2022) to 7560 kg/head, gross production of milk - to 1270.1 thousand tons, increase the share of processed milk to 75%, and the supply of milk - to 340 kg/person. The level of state support of the dairy cattle operations (in comparable prices of 2014) will amount to 6.0 bln rubles that is 15 times higher than that in 2014. Recoupment of production costs in dairy farming will grow up to 1.5% compared with an estimate of 2014, which was 1.12%.

REFERENCES

Agropromyshlennyj kompleks Krasnoyarskogo kraya v 2009 godu [Agro-industrial complex of the Krasnoyarsk Territory in 2009] [Text]. Krasnoyarsk, 2010.

Agropromyshlennyj kompleks Krasnoyarskogo kraya v 2010 godu [Agro-industrial complex of the Krasnoyarsk Territory in 20010] [Text]. Krasnoyarsk, 2011.

Agropromyshlennyj kompleks Krasnoyarskogo kraya v 2011 godu [Agro-industrial complex of the Krasnoyarsk Territory in 2011] [Text]. Krasnoyarsk, 2012.

Agropromyshlennyj kompleks Krasnoyarskogo kraya v 2012 godu [Agro-industrial complex of the Krasnoyarsk Territory in 2012] [Text]. Krasnoyarsk, 2013.

Agropromyshlennyj kompleks Krasnoyarskogo kraya v 2013 godu [Agro-industrial complex of the Krasnoyarsk Territory in 2013] [Text]. Krasnoyarsk, 2014.

Altukhov, A. I., 2014. Obespechenie prodovol'stvennoj bezopasnosti i povyshenie dohodnosti sel'skogo hozyajstva – osnova novoj gosudarstvennoj agrarnoj politiki Rossii [Ensuring food security and increasing revenue of the rural economy: Foundation of the new state agrarian policy of Russia] [Text]. Proceedings of the All-Russian Scientific Conference of Young Scientists "Sustainable development of rural areas: Theoretical and methodological aspects". Ulyanovsk State Agricultural Academy named after P.A. Stolypin, Ulyanovsk, 1.

Baryshnikov, N.G. and Samygin, D.Y., 2008. Planirovanie i analiz ispol'zovaniya byudzhetnyh sredstv v sel'skom hozyajstve [Planning and analysis of use of budget funds in agriculture] [Text]. Penza State Agrarian University, Penza, 165 p.

Bespakhotny G.V. and Baryshnikov, N.G., 2006. Napravleniya perestrojki sistemy subsidirovaniya sel'skogo hozyajstva [Restructuring lines of the subsidy system in agriculture] [Text]. Economy of Agricultural and Processing Enterprises, 12, pp. 1-4.

Veklenko B. and Dorodnykh, D., 2015. Puti povysheniya ehffektivnosti proizvodstva moloka [Ways of improving the efficiency of milk production] [Text]. Economy of Agriculture in Russia, 2, pp. 13-18.

Goncharov, V. and Koteev, S., 2015. Sovershenstvovanie territorial'noj organizacii zhivotnovodstva v Rossii [Improvement of the territorial organization of cattle breeding in Russia] [Text]. Economy of Agriculture in Russia, 3, pp. 55-60.

Zakon Krasnoyarskogo kraya «O gosudarstvennoj podderzhke sub"ektov agropromyshlennogo kompleksa kraya» [The Law of the Krasnoyarsk Territory "On state support of entities in agricultural sector" of 21.02.2006 No. 17-4487] [Text] (as amended on 03.06.2015). Retrieved from http://www.consultant.ru.

Nechaev, V.I., Artemova, E.I., and Bursa, I.A., 2010. Tendencii i osobennosti razvitiya rynka syrogo moloka [Tendencies and development features of the raw milk market] [Text]. Economy of Agricultural and Processing Enterprises, 7, pp. 54-57.

Ovsyanko, A.V., Pizhikova, N.I., and Ovsyanko, L.A., 2015. Povyshenie ehffektivnosti proizvodstva moloka v regione s uchetom gosudarstvennoj podderzhki [Increase in efficiency of milk production in the region in the light of state support] [Text], Monograph. Krasnoyarsk State Agrarian University, Krasnoyarsk, 120 p.

Postanovlenie Pravitel'stva Krasnoyarskogo kraya «ot 07.10.2012 g. № 574-p Ob utverzhdenii dolgosrochnoj celevoj programmy «Razvitie sel'skogo hozyajstva i regulirovanie rynkov sel'skohozyajstvennoj produkcii, syr'ya i prodovol'stviya v Krasnoyarskom krae» [Resolution of the Government of the Krasnoyarsk Territory of 07.10.2012 No. 574-p "On approval of the long-term target program "Development of agriculture and regulation of agricultural products, raw materials, and food markets in the Krasnoyarsk Territory" for 2013-2020" (as amended on 03.12.2013)] [Text]. Retrieved from http://www.consultant.ru.

Postanovlenie Pravitel'stva RF ot 14.07.2012 g. № 717 «O Gosudarstvennoj programme razvitiya sel'skogo hozyajstva i regulirovaniya rynkov sel'skohozyajstvennoj produkcii, syr'ya i prodovol'stviya na 2013–2020 gody» [Resolution of the Russian Federation Government of 14.07.2012 No. 717 "On state program of agriculture development and regulation of agricultural products, raw materials, and food markets for 2013-2020" (as amended on 19.12.2014)] [Text]. Retrieved from http://www.consultant.ru.

Semin, A.N., 2015. Prodovol'stvennaya bezopasnost' Rossii v usloviyah ehmbargo [Food security of Russia in terms of embargo] [Text]. Economy of Agricultural and Processing Enterprises, 5, pp. 9-14.

Serkov, A.F., 2014. Agrarnaya politika: vyzovy i perspektivy [Agricultural policy: challenges and prospects] [Text]. Economy of Agricultural and Processing Enterprises, 12, pp. 2-6.

Tkach, A.V., 2014. Molochno-produktovyj podkompleks Rossii: sostoyanie i perspektivy razvitiya [Dairy-grocery subcomplex of Russia: status and development prospects] [Text]. Economy of Agricultural and Processing Enterprises, 10, pp. 7-14.

Ushachev, I.G., 2015. Agroprodovol'stvennyj sektor Rossii v usloviyah sankcij: problemy i vozmozhnosti [Agri-food sector in Russia under sanctions: challenges and opportunities] [Text]. Economy of Agricultural and Processing Enterprises, 5, pp. 2-8.

Federal'nyj zakon «O razvitii sel'skogo hozyajstva» ot 29.12.2006 g. № 264-FZ [Federal law "On development of agriculture" of 29.12.2006 No. 264-FZ (ed. on 13.08.2015)] [Text]. Retrieved from http://www.consultant.ru.

AN INNOVATIVE APPROACH TO THE TRANSFORMATION OF ECO-ECONOMIC SPACE OF A REGION BASED ON THE GREEN ECONOMY PRINCIPLES

Tamara V. Shabunina, Institute of Regional Economy Problems Russian Academy of Sciences
Svetlana P. Shchelkina,Institute of Regional Economy Problems Russian Academy of Sciences
Dmitriy G. Rodionov,Peter the Great St. Petersburg Polytechnic University

ABSTRACT

The article proposes an integrated approach to the transformation of eco-economic space of the region based on eco-efficiency tools and management methods, as well as analyzes the impediments that hinder the process of development, implementation, and dissemination of eco-innovation, highlights the areas of innovative activity regulation mechanism on the principles of green economy. The authors propose to assess the impact of innovation on the transformation of eco-economic space of a region based on the dynamic analysis of the main environmental quality index and population health indicator as well as the ecologized human development index. The article presents the insights of statistical indicators of the environment and public health in the constituent entities of the North-West Federal District (NWFD) of the Russian Federation (RF) for the period of 2000-2014, which has shown the nonoccurrence of positive dynamics in efficiency of innovations. The authors carried out calculations of the ecologized human development index in the constituent entities of the NWFD of the RF for the period of 2005-2014, whose trend allows assessing the human development index in the region with due consideration of environmental component, as well as provides the possibility to compare the success in the development of the region under study with other regions of the RF in terms of eco-innovations.

Keywords: Green economy, eco-innovation, transformation of eco-economic space of a region.

JEL Classifications: O10, O11, O13, O31

INTRODUCTION

Currently, the necessity of the transition from traditional economy to a green economy is the most discussed issue in the "nature-society" system development. New eco-innovation approach includes not only nature protection and recovery measures, but also ensures green growth (conservation of natural resources and solution of social problems) that can be achieved through the support and dissemination of technological, economic and socio-cultural innovations.

The problems of development, implementation and dissemination of innovations in contemporary science are discussed within the framework of environmental management and resource conservation. This resulted in the emergence of a concept of eco-innovations which reduce the environmental impact. Eco-innovations include new products, processes and systems, which minimally use natural resources and marginally contribute to hazardous substances emissions. They have specific features, which must be considered when developing the eco-innovative development strategy of the economy. First and foremost, this is the impact of environmental externalities, including greenhouse gas emissions, rising amounts of production and consumption wastes, etc., resulting in a significant climate change that encourages both development of new environmental technologies and their dissemination. Secondly, we should emphasize the dependence of eco-innovations on the specific environmental conditions and the availability of particular resources, a sharp differentiation according to municipalities, agglomerations, regions, climatic zones, as well as their world-spanning nature. Thirdly, we should note the relationship between eco-innovations and the social and institutional innovations process development, the willingness of society to pay for the implementation of eco-innovations, for a better environment.

Today, for the RF, environmental focus of innovative development of economy is especially relevant, given the general inefficient use of natural resources and low level of energy conservation. Despite the large number of normative legal documents produced in recent years, which contain innovative approaches with an emphasis on targeted support of the demand for eco-innovations and their quite consistence with the approaches used in foreign practice, the eco-innovative activity in the country continuous to be in a state of stagnation.

It should be noted that the ecological consequences of any economic activity arise and manifest themselves, first and foremost, in the specific area, where social, economic and ecological processes, as well as production structure and specialization, have unambiguously expressed regional scope. It is greatly influenced by spatial differences of climatic conditions, the uneven distribution of natural resources, the existing population settlement system, and traditions of the economic mode. Therefore, an innovative approach to the positive transformation of regional eco-economic space (conditions and development strategy, content and regulation instruments, and managerial methods) can be implemented with due consideration of each region characteristics.

A decisive role in the innovation processes is plaid by the social component, as a factor accelerating the development, implementation, and dissemination of eco-innovations due to the involvement of employees and the social transformations in the organization to gain competitive advantage as well as ensure environmental safety and favorable living environment.

RESEARCH METHODOLOGY AND EVALUATION TECHNIQUE

An innovative approach to the transformation of eco-economic space of the region on the green economy principles is based on the theoretical provisions of innovative model of economy development (described in the works of Schumpeter (1982), J. Schmookler (1962), D. Mowery and N. Rosenberg (1979) K. Perez (2011), and M. Porter (1993)), as well as the theory of sustainable development (in the works (Dosi 2015; Edler 2007; Sarkar 2013; James 1997; Rennings 2002; Mityakova 2009; Bobylev 2004; Ilin and Anisiforov, N. D.)) , in which

economic, social, and environmental aspects are recognized as equal ranking in terms of the development of "society-nature" system, and which define the role and importance of eco-innovations, as well as the need to balance their supply and demand.

Eco-economic space of the region is defined as a system of relations formed by interacting economic and environmental spaces, which defines further living conditions and quality of life of the population in the given region.

Innovation based positive transformation of eco-economic space of a region creates preconditions for transition to its sustainable development on the principles of eco-economic balance, allows predicting the influence of ecosystems on social and economic spaces and reducing the environmental risks of economic activity and the regional environmental conditions.

An innovative approach to the transformation of eco-economic space of a region is implemented based on the following methodological provisions:

- Existing features of eco-innovations, caused by the presence of external effects, whose monetary valuation is not conducted by the market (that reduces incentives to neutralize the negative environmental impacts);
- Specific failures of the market mechanism, associated with the specificities of innovation processes: dependence on traditional technological trajectory, the advantages of companies (the old-timers) operating on the traditional markets; uncertainty of investment in innovation, and attitudinal impediments (resistance of some consumers to innovations);
- The balance between eco-innovations supply and demand based on the green growth principles, providing a high level of environmental safety, energy efficiency and resource conservation as the basis of a positive transformation of the eco-economic space of the region;
- The need for state support and funding of basic research, the creation of institutional conditions providing communications between fundamental research and R&D in the field of innovation.

The study of the development, implementation, and dissemination processes of eco-innovations is carried out in a significant number of articles (Bobylev, S.N., 2004; Gurieva, M.A., 2015; Johnson, M., 2010; Pakhomova, et. al. 2015; Nikolova, et. al. 2015), which analyze the impediments hindering innovations (Table 1).

All noted difficulties in the creation, implementation and dissemination of eco-innovations are interrelated. Therefore, the solution to this problem should be comprehensive. In our view, a comprehensive approach to the effective management of the eco-innovative development of the region should be based on extensive use of the following foreign methods of purposeful and systematic implementation of eco-innovations: the concept of eco-efficiency, cleaner production model; international standards of eco-management and auditing (ISO 14000, EMAS), methods to improve resource productivity based on the MIPS concept, the new systemic ecological design and special labeling of products, providing a high level of ecological safety of production, products and services while strengthening the competitive position of the business.

In consequence of the conducted analysis, practical application of these methods in the RF is limited to those companies which are involved in international projects, or the export-oriented enterprises. Therefore, these practices have no necessary effect on the existing engineering and technological, as well as organizational and managerial approaches in the regional management. The transition of enterprises to innovative management methods in eco-innovative development that gives significant environmental, resource-saving and social effects, are constrained by focusing on the problems of survival in a competitive environment and

economic crisis. In addition, we should note lack of methodological and information base for the implementation of eco-efficient approaches.

Table 1
IMPEDIMENTS HINDERING THE ECO-INNOVATION DEVELOPMENT, IMPLEMENTATION,AND DISSEMINATION

No.	Types of impediments	Subject-matter
1.	Economic impediments	- market prices, which do not fully reflect manufacturing cost of product or service, for example, health care costs due to air pollution in cities; - low level of demand for eco-innovation on the part of public sector and consumers; - inadequate sophistication of risk and income assessment tools from the implementation of eco-innovations; - increase in costs for investments in eco-technologies because of their perceived risk; - the uncertainty of the start-up investment; - the complexity of transition from traditional technologies to eco-technologies.
2.	Technological impediments	- mismatch of technology with the specified economic requirements and process design standards; - lack of alternative materials that can replace hazardous components; - high level of complexity in the development of eco-innovation based technologies; - low investment activity due to lack of tools to assess profitability of investments in eco-innovations.
3.	Financial impediments	- high studying expenses of eco-technologies; - changing preferences of consumers with regard to eco-products; - lack of analytical methods that determine the balance between costs and benefits from the implementation of eco-innovations; - difficulties in predicting the R&D costs; - lack of investment flexibility due to low profitability; - inefficiency of investments into the environmental modifications for enterprises that have long existed in the market;
4.	Personnel impediments	- lack of highly-qualified personnel in eco-innovation management, monitoring, and implementation; - unwillingness of companies to invest in staff training.
5.	Impediments in consumer behavior	- stable perception of eco-innovations by analogy with the products of technical purpose; - the risk of customers loss due to the price increase caused by the cost component of eco-technologies in the final price of the product.
6.	Impediments in supply chain	- lack of intermediaries capable of accepting responsibility for eco-products marketing and promotion.
7.	Management impediments	- lack of interaction practices between technical staff and experts in the field of resource-saving, environment and natural resources; owards implementing eco-innovations into production and management processes; - lack of experience in the management of such changes.

One important condition of active implementation and dissemination of eco-innovations is improvement of the regional innovation infrastructure institutions. It should be noted that the experience in creation and functioning of technoparks and innovation-industrial zones in Saint-

Petersburg, operating for over ten years, shows that the environmental component in their activity is very small (only environment impact assessment of innovative projects is being conducted). Meanwhile, they could become one of the most effective institutions in the region that would contribute to the positive transformation of innovation-based ecological and economic space.

Best practices have been gained in the establishment of regional environmentally friendly technology innovation centers (TIC). Thus, the CTI for integrated processing and disposal of industrial and solid domestic wastes is established in Saint-Petersburg to solve the eco-innovation development problems («Mechanobr-Tekhnika» Research and Engineering Corporation). Also important is the operational practices of the Northwestern Regional Innovation Center for High Technologies "ARTES" at the Institute of Problems of Electrophysics of the Russian Academy of Sciences. Its activity is focused on priority areas of modern science and technology, i.e. the latest innovative technologies aimed at solving ecology, environmental protection, and waste recycling problems.

In our opinion, an innovative approach to the transformation of eco-economic space of a region based on the green economy principles requires the formation of regulation mechanism when:

- promoting green growth strategy, whose implementation requires consideration of specific features of eco-innovations and related impediments (economic, technological, financial, as well as impediments in human resources, consumer behavior, supply chain, etc.);
- Providing state support of demand for eco-innovations through a system of state orders and purchases;
- Creating of a special leading markets institution to support alternative energy sources;
- Supporting and encouraging private-public partnerships and associations for the solution of eco-innovative problems of regional development;
- Applying a stricter ecological standards for business entities located in the territory of the region to reduce ecological risks;
- Developing network structures as a growth factor in the demand for eco-innovation;
- Applying advanced methods in eco-innovation development, based on the principles of eco-efficiency concept, methods to improve resource productivity (MIPS concept); a new system-based eco-design, special product labeling, etc., by regional business entities;
- Improving the regional innovation infrastructure, which should be focused on extension of eco-innovations penetration and dissemination (technology parks, innovation and industrial zones, innovation and technology innovation centers, science cities, etc.)

The ultimate goal of positive transformation of eco-innovation based eco-economic space of the region is providing favorable conditions of human life. For a first approximation, the assessment of the eco-innovation effect on the transformation of eco-economic space can be carried out based on the dynamic analysis of the key indicators of the environment and the health of the population, as well as based on the trend in ecologized human development index (HDI_e), which is calculated using the human development index.

Ecologized human development index was estimated by the formula (Vlasov 2009):

$$HDI_e = 0.3\ LI + 0.3\ II + 0.1\ ENIN$$

where HDI_e – is the ecologized human development index;
LI – is the longevity index;
II – is the income index;
$ENIN$ – is the environment indicator

$$ENIN = [1 - (3/4\ EMI + ¼\ SDI)]\ UR$$

where *EMI* – is the emissions index;

SDI – is the sewage disposal index;

UR – is the rate of urbanization: proportion of urban population in total population of the region.

When calculating ecologized human development index (HDI_e) we used data on longevity index (LI), education index (EI), and income index (II) retrieved from the reports on human development in the Russian Federation (The report on human development in the Russian Federation, 2014). The ecologized human development index is a measure of eco-innovative development of the region.

ANALYSIS AND RESULTS

In reliance upon information of Federal State Statistics Service we have performed the analysis of statistical data on the environment and the health of the population in the constituent entities of the North-Western Federal District of the Russian Federation for the period of 2000-2014 (The regions of Russia. Socio-economic indicators), which has showed unfavorable trend. Most of the water and air pollution impacts negatively affect the health of the population (according to the incidence per 1,000 of population; the incidence per 1,000 of population by main disease classes, including primarily neoplasms, as well as diseases of respiratory organs, circulatory, and digestive systems). Morbidity rate per 1,000 of population in the NWFD of the RF is 1.08 times higher than that for the Russian Federation in general. At that, the highest indicators were revealed in the Republic of Karelia, the Komi Republic, and Arkhangelsk Region (by 1.3 times higher comparing to the Russian Federation). Diseases of the respiratory system hold leading position in the structure of primary morbidity of the population. The corresponding indicators (morbidity per 1,000 of population) in the NWFD exceed the indicators for the Russian Federation by 1.2 times. Diseases of the circulatory system in the NWFD are most common in the Komi Republic, Arkhangelsk and Vologda regions, where the incidence per 1,000 of population is higher than average in the NWFD and the Russian Federation. Besides, the NWFD is characterized by unfavorable trends in terms of neoplasms. The highest indicator corresponding to this disease per 1,000 of population is noted in Saint-Petersburg. Table 2 presents the variations in the proper indicators according to main disease classes in the constituent subjects of the NWFD of the RF.

Table 2
VARIATIONS IN THE INDICATORS BY MAIN DISEASE CLASSES IN THE NORTH-WESTERN FEDERAL DISTRICT (INCIDENCE PER 1,000 OF POPULATION)

Constituent entities of the North-West Federal District	Variations in indicators by main classes of diseases in the NWFD in 2014 compared to 2010			
	Neoplasms	Respiratory diseases	Circulatory diseases	Digestive system diseases
Russian Federation	1.06	1.04	1.14	1.05
Northwestern Federal District	1.06	1.03	1.01	0.95
Republic of Karelia	1.15	1.06	1.18	1.01
Komi Republic	1.13	1.01	0.95	1.03
Arkhangelsk Region	0.92	1.03	0.85	0.85
Vologda Region	0.86	1.00	0.79	0.92
Kaliningrad Region	1.25	1.06	1.19	0.93
Leningrad Region	1.18	0.97	1.12	1.28
Murmansk Region	1.16	0.98	1.17	1.05
Novgorod Region	1.43	1.05	1.10	0.96
Pskov Region	0.94	1.05	1.43	1.00
Saint-Petersburg	0.99	1.06	0.95	0.92

As shown in Table 2, in the subjects of the NWFD, indicators by main disease classes in general tend to increase. There is just a slight reduction in the incidence of respiratory diseases in the Leningrad and Murmansk regions; circulatory diseases - in the Komi Republic, the Arkhangelsk and Vologda regions, as well as Saint-Petersburg; digestive system diseases - in the Arkhangelsk, Vologda, Kaliningrad, Novgorod regions, and Saint Petersburg.

Table 3
ECOLOGIZED HUMAN DEVELOPMENT INDEX

Constituent entities of the North-West Federal District	Period under review									
	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Saint Petersburg	0.805	0.821	0.834	0.851	0.861	0.885	0.868	0.881	0.878	0.868
Komi Republic	0.715	0.723	0.737	0.746	0.752	0.767	0.786	0.796	0.786	0.784
Arkhangelsk Region	0.731	0.739	0.749	0.757	0.759	0.773	0.770	0.805	0.802	0.801
Murmansk Region	0.739	0.753	0.761	0.771	0.773	0.782	0.803	0.814	0.810	0.800
Kaliningrad Region	0.727	0.738	0.757	0.779	0.787	0.806	0.815	0.828	0.815	0.813
Republic of Karelia	0.731	0.749	0.759	0.767	0.769	0.785	0.804	0.812	0.806	0.805
Volgograd Region	0.736	0.742	0.750	0.759	0.763	0.762	0.764	0.783	0.769	0.766
Leningrad Region	0.715	0.72	0.728	0.736	0.745	0.770	0.773	0.789	0.775	0.774
Novgorod Region	0.732	0.745	0.753	0.76	0.768	0.787	0.795	0.808	0.795	0.794
Pskov Region	0.713	0.715	0.723	0.743	0.744	0.763	0.773	0.787	0.773	0.771

Thus, the variations in the main indicators of the environment and public health indicate lack of positive trend in efficiency from implementation of eco-innovations, in spite of the constantly increasing spending from the federal budget for environmental protection. Ecologized human development index for the period of 2005-2014 is presented in Table 3.

The data in Table 3 indicate a decrease in ecologized human development index over the period of 2013-2014 in all constituent entities of the NWFD due to the negative trends of the environment and public health. We can state that the eco-innovations in the constituent subjects of the NWFD are ineffective and so far do not provide positive transformation of the eco-economic space of the region.

DISCUSSION

The works dealt with the study of economy innovation problems consider the issues relating to encouragement of innovations supply and demand, the ways ensuring their balance, and efficient state support. These are works of J.A.Schumpeter (1982), J. Schmookler (1962), D. Mowery and N. Rosenberg (1979), M. Porter (1993), N. V. Pakhomova, K.K. Richter, G.B. Malyshkova, Yu.P. Bondarenko (2015), D.G. Rodionov (2016), and Glukhov, V.V., Ilin, I.V., Iliashenko, O.J. (n. d.), Kudryavtseva, T.J., Kuporov, J.J. (2015). In the works devoted to the sustainable development of the economy, based on the innovative approach, all actors of the economy are considered as socio-eco-economic systems, in which economic, social and environmental components are defined as equal ranking in the development of "society-nature" system, and the priority goals are changed towards the integrity of the natural complex, environment, and improvement of the life quality (Dosi 2015; Edler 2007; Sarkar 2013; James 1997; Rennings 2002; Mityakova 2009; Bobylev 2004; Rodionov, et. al. 2014). The strategic management in the region is considered in works of M.F. Zamyatina and A.A. Bashirova, where the authors determine the possibility of forming a development strategy of the region from the perspective of eco-economic balance, and assume the proportion between resource-based environmental capabilities of the region and the needs of regional socio-economic system, which ensures the reproduction of natural, human and produced capital (Zamyatina and Dyakov 2015; Bashirova 2010).

However, the contemporary research works only partially describe an innovative component of the positive transformation of eco-economic space of the region, suggesting the need for proposed integrated approach, which includes setting strategic goals and identifying development areas, creating necessary institutional conditions, forming and implementing the regulatory mechanism of the studied process based on eco-efficient tools and management techniques.

The development of further research can be conducted towards improving the strategic management of sustainable development of the region based on the principles of optimal balance between the needs of public demands, public production, conservation of natural resources, as well as environmental properties and quality.

CONCLUSION

The obtained results can be practically used in the regional and municipal management, as well as strategy generation of eco-innovative development of the regional economy with allowances made for competitive advantages of the region, its resource peculiarities and economic, environmental, and human potentials.

Estimated ecologized human development index, evidence from constituent entities of the North-West Federal District of the Russian Federation, may be used to evaluate the human potential development in the region, taking into account the environmental component, as well as to compare the success in advancement of the concerned region with other regions of the Russian Federation with regard to eco-innovations. The results obtained can be used, when developing regional social policy at the state, regional and municipal managerial levels, including the development of ecological culture of the population, government and business representatives in the framework of environmental education and training, as well as assessing health risk from environmental pollution.

REFERENCES

Bashirova, A.A. (2010). Formirovanie strategii regional'nogo razvitiya s pozicij ehkologo-ehkonomicheskoj sbalansirovannosti [Formation of regional development strategy from the standpoint of eco-economic balance]. *Economic Science*, 11(72): 87-90.

Bobylev, S.N. (2004). *EHkonomika ustojchivogo razvitiya* [Economics of sustainable development] [Text]. Moscow: Stupeni.

Doklad o chelovecheskom razvitii v Rossijskoj Federacii [The report on human development in the Russian Federation].(2014). Moscow: Analytical Center under the Government of Russian Federation

Dosi, G. (2015). Technological paradigms and technological trajectories. A suggested interpretation of the determinants and directions of technical change. Retrieved February 9, 2015 from http://dimetic.dime-eu.org/dimetic_files/DosiResPo1982.pdf.

Edler, J. (2007). Demand-based Innovation Policy. Manchester Business School Working Paper, pp. 529.

Glukhov, V.V., Ilin, I.V. and Iliashenko, O.J. (n. d.). Improving the efficiency of architectural solutions, based on cloud services integration. *Lecture Notes in Computer Science (including subseries Lecture Notes In Artificial Intelligence and Lecture Notes in Bioinformatics)*, 9247: 543-553.

Gurieva, M.A. (2015). "Zelenaya ehkonomika" v Rossii. Green economy in Russia. *The theory and practice of social development*, 7, pp. 58-59.

Ilin, I.V. and Anisiforov, A.B. (n. d.). Improving the efficiency of projects of industrial cluster innovative development based on enterprise architecture model. *WSEAS Transactions on Business and Economics*, 11: 757-764.

James, P., 1997, The sustainability circle: a new tool for product development and design. *Journal of Sustainable Product Design*, 2: 52-57.

Johnson, M. (2010). Green economy as a system. Harvard Business Review, ½: 87-95.

Kudryavtseva, T.J. and Kuporov, J.J. (2015). Evaluation of social and economic efficiency of investments in public utility services. *Asian Social Science*, 11 (19): 151-158

Mityakova, O.I. (2009). *Problemy ustojchivogo razvitiya ehkonomiki Rossii na osnove innovacionnyh preobrazovanij* [Problems of sustainable development of the Russian economy on the basis of innovative transformations] [Text]. Nizhny Novgorod: Nizhny Novgorod State Technical University n.a. R.E. Alekseev (NNSTU).

Mowery, D, and Rosenberg, N (1979). The influence of market demand upon innovation: A critical review of some recent empirical studies. Research Policy, 8(2): 102–153.

Nikolova, L.V, Kuporov, J.J, and Rodionov, D.G. (2015). Risk management of innovation projects in the context of globalization. *International Journal of Economics and Financial Issues*, 5 (3S): 73-79.

Pakhomova, N.V., Richter, K.K., Malyshkov, G.B., and Bondarenko, Yu.P. (2015). Formirovanie sprosa na ehkologicheskie innovacii: dostatochna li institucional'naya podderzhka [Demand making for environmental innovation: whether or not the institutional support is sufficient] [Text]. *Problems of the Modern Economy*, 2(54) 15-27.

Perez, C. (2011) Finance and technical change: A long-term view. African Journal of Science, Technology, Innovation and Development, 3(1) 10–35.

Porter, M. (1993). Mezhdunarodnaya konkurenciya [International competition] [Text]. Moscow: International relations.

Regiony Rossii. Social'no-ehkonomicheskie pokazateli. [The regions of Russia. Socio-economic indicators]. (n. d.). Statistical Annual Digest 2005-2014.

Rennings, K. (2002) *Employment impacts of cleaner production. Heidelberg*. New York: Physika-Verlag.

Rodionov, D.G., and Kudryavtseva,T.J. (2016). Factors of the effective development of the St. Petersburg instrument engineering cluster. *International Journal of Economics and Financial Issues*, 6(S2): 298-306.

Rodionov, D.G., Rudskaya, I.A., and Kushneva, O.A. (2014). The importance of the university world rankings in the context of globalization. *Life Science Journal*, 11(10S): 442-446.

Sarkar, A. (2013). Promoting eco-innovations to leverage sustainable development of eco-industry and green growth. European Journal of Sustainable Development, 2(1): 171-224.

Schumpeter, J.A. (1982). Theory of economic development. Moscow: Progress Publ., pp. 456.

Schmookler, J. (1962). Economic sources of inventive activity. Journal of Economic History, 11(1): 1–20.

Vlasov, Yu.S. (2009). *EHkologo-ehkonomicheskaya ocenka blagosostoyaniya naseleniya v regionah Rossii* [Ecol-economic assessment of the human wellbeing in the regions of Russia] [Text]. Ph.D. thesis. Moscow State University named after Lomonosov, Moscow.

Zamyatina, M.F., and Dyakov, Y.M. (2015). K voprosu o perekhode k regional'nomu razvitiyu na principah ehkologo-ehkonomicheskoj sbalansirovannosti [On the issue of the transition to regional development on the principles of eco-economic balance]. *Economics and Entrepreneurship*, 11(2): 205-212.

DEVELOPMENT OF MANAGEMENT ACCOUNTING IN RUSSIA

Vladimir Ivanovich Truhachev, Stavropol state agrarian University
Elena Ivanovna Kostyukova, Stavropol state agrarian University
Aleksey Nikolaevich Bobrishev, Stavropol state agrarian University

ABSTRACT

The aim of the study is to identify the prospects and limitation of further development of management accounting as a science and its distribution in the practice of accounting and analytical work of Russian enterprises of the agrarian sector. As a result, stimulating and bounding factors were identified and classified. The research also identified the most popular tools, methods and forms of management accounting in the condition of Russian reality, as well as the most important competence of specialists in the field of management accounting. The expert survey results were compared with similar, previously conducted, most representative researches both in Russia and abroad. As a result, there were identified hidden reserves for wider dissemination of management accounting in practice of enterprises of agrarian sector of the Russian Federation.

Keywords: accounting, expenses, management accounting, financial analysis, economy crisis, technology of management accounting, budgeting, balanced scorecard, the agrarian sector of the economy.

JEL Classification: L84, M40, M41, M49, Q10

INTRODUCTION

Every year management accounting increasingly ranged as an independent science, with immanent subject, object and tools oriented to the adoption of effective management decisions. The period of active formation of system of management accounting in Russia shows that today this science is considered generally recognized both in scientific environment and business environment, and efficiency in the use of individual elements of management accounting raises less doubt among researchers and practitioners. At the same time, 20 years of experience in discussions and disputes concerning interpretation of key economic categories, further prospects of use of tools for identification of objects, subjects and methods of management accounting witness about the need to summarize some further development of subtotals of management accounting, identifying different deficiencies in its methodology, search of existing limitations of its distribution. The present research performs analyses of the functional validity of the existing accounting system, which allows to identify the basic functional limitations that prevent the introduction of management accounting in the economic performance of agricultural sector in Russia, as well as uncover hidden opportunities for its further development.

METHODOLOGY

General Methodological Approach

The research is performed in the framework of the grant of the President of the Russian Federation for the State Support of Young Russian Scientists (MK-8806.2016.6) and is focused on the identification of regularities of development and the functional validity of the existing system of management accounting in the agricultural regions of Russia. Methodological framework of the research was formed taking into account the results obtained by Russian and foreign authors in the study of issues of formation and development of management accounting. This study is a continuation of the early works of the authors (Bobryshev, Elchaninova and Tatarinova 2015).

Analysis of Theories of Management Accounting

The study has examined various aspects of development of management accounting. In this context, it is worth noting the following work and scientific results:

1. Building of improved model of management accounting based on the ideas of organizational control and efficiency (Otley 1980);
2. Researches on the organization of the budgeting system at the enterprise (Covaleski and Dirsmith 1983); (Abernethy and Brownell 1999; Brownell 1983; Kostyukova, Elchaninova and Manzhosova, 2009);
3. The concept of the balanced indicators (Martinsons, Davison and Tse 1999; Libby, Salterio and Webb 2004; Qu and Coope 2011; Kaplan and Norton 1992);
4. Study of the role of communication in decision-making system based on management accounting (Jönsson 1998);
5. Description of the role of management accounting in development of systems of performance appraisal (Chenhall and Langfield-Smith 1998);
6. Study of the genesis and prospects of further development of management accounting (Johansson and Siverbo 2009; Burritt and Schaltegger 2010; Babich and Mityuchenko 2016; Klochko, Rybyantseva and Oksanich; Parker 2012; Busco and Scapens 2011; Scapens 2006)
7. Consideration of the methodological aspects of various segments of management accounting (Klychova, Zakirova, Mukhamedzyanov and Faskhutdinova 2014).

Causes and consequences of accounting system changes are described in the research (Hopwood 1987), while the factors contributing to the change of accounting as well as reflecting the role of accounting were highlighted and ways of influencing the process of institutional changes in the future were mentioned. In the context of the research it is worth mentioning works, dedicated to the issues of transformation processes of accounting and analytical procurement to the management of economic entities: (Butler and Ghosh, 2015; Burns and Scapens 2000; Davison 2015; Ezzamel, Willmott and Worthington 2008; Nagar, Venky, and Gwen 2014, Schleicher and Walker 2015; Smith, Morris and Ezzamel 2005; Johnson and Kaplan 1987).

Research on a number of interconnected terms of reference have shown: increasing distribution of analytical methods of management accounting in comparison with traditional; harmonization of the methodology of management accounting in accordance with postindustrial processes in the economy; the increasing diffusion of managerial accounting, related to small and medium-sized firms; the common complication of the process of decision-making on the background of depressive economy phenomena.

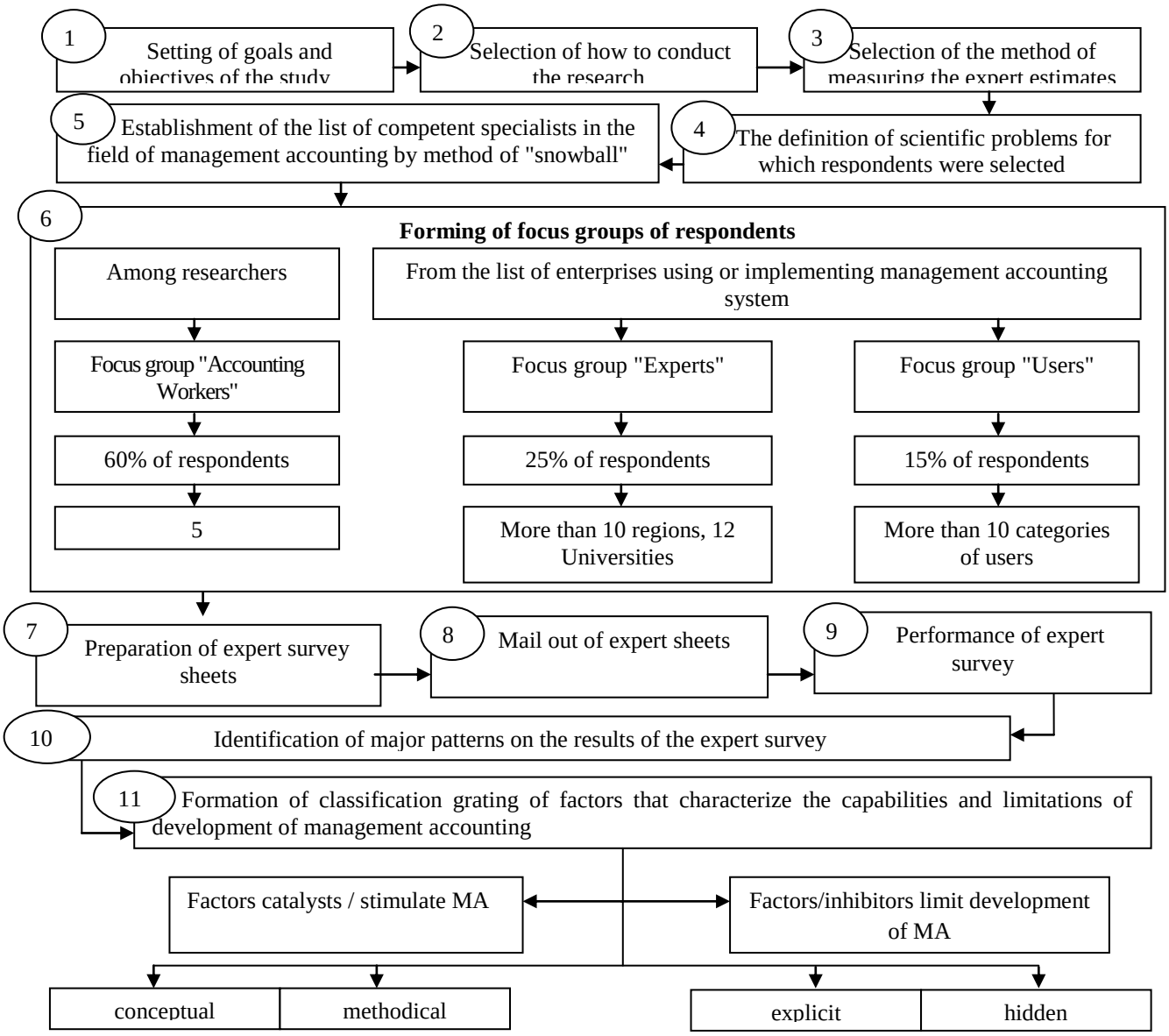
The Algorithm of the Research

The research was conducted in accordance with the developed algorithm (Figure 1) using the method of expert survey.

For this purpose, highly qualified specialists in the field of management accounting have been selected and arranged into three focus groups:

1. "Accounting workers" - this focus group included employees of the accounting and analytical services enterprises of various economic activities in several regions of the Russian Federation.
2. "Scientists" - are employees of higher educational institutions and scientific establishments of the Russian Federation, with the degree of candidate and doctor of economic sciences, involved in the development of management accounting.

Figure 1
THE ALGORITHM OF THE RESEARCH



3. "Users" - are individuals who use data of management accounting to make decisions based on financial and management reporting (CEOs, business owners, investors, financial and credit analysts, etc.).Unlike the mass survey, the expert one forms a limited number of members of expert groups, whilst a choice of specialists for focus groups is one of the most important stages that define the terminal effectiveness of the research and relevance of information received in order to identify the relevant determinants and patterns.

To conduct the expert survey, the best specialists in the field of setting and implementation of management accounting in agricultural organizations with more than 10 years of practical work were selected. In the focus group "Scientists" Doctors of Science with the highest rates of citation (Russian Science Citation Index) scientific works in the field of management accounting were selected.

RESULTS

The Analysis of the Functional Validity of the Existing System of Management Accounting

The conclusion of the research is that it is currently impossible to speak of widespread management accounting in Russian regions with agricultural specialization. 53.8% of the interviewed representatives of enterprises, only partially and arbitrarily use its separate elements, and 7.7% of the respondents do not see the need to implement it. But on the other hand, the positive practice and the possibility for further distribution exist.

Most often functions of conducting of management accounting were connected with accountants, it was mentioned by 40.3% of all respondents replied; 12.9% of respondents reported that such functions were connected with accountant-analyst, within the scope of activity of which is exclusively conducting of management accounting.

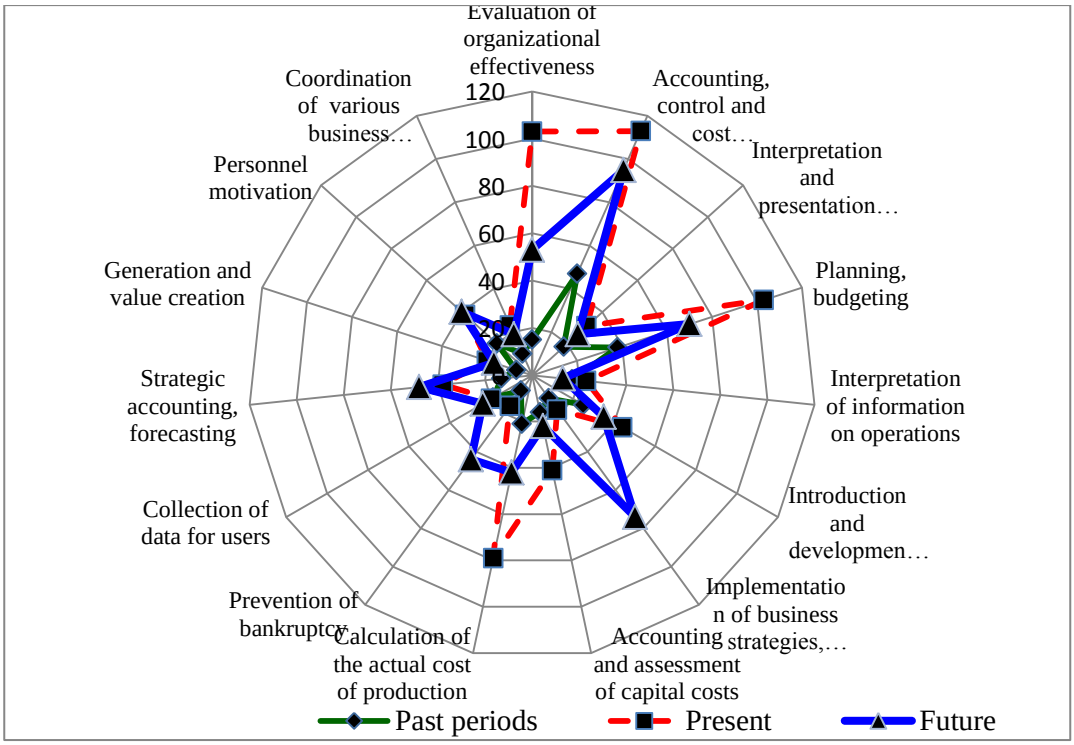
From the position of different categories of users of management accounting targets are treated differently, this explains isolation and at the same time, a wide variety of methods and tools. Architectonics of management accounting in this connection has a unique structure within various economic entities, but at the same time, there are basic objectives of management accounting and corresponding methods of formulating the relevant information to make effective decisions, as demonstrated by this research, such objectives should include, primarily: "Accounting, control, and minimization of expenses; "Assessing the effectiveness of the Organization; "Planning and budgeting.

As a result of dynamic assessment of the importance of challenges facing accountants engaged in management accounting, which intended to express the views on how different aims have varied over time, there were revealed the following pattern: in all focus groups, respondents indicated their substantial transformation. This confirms latent evolutionary processes in the methodology of accounting science that is changing under the influence of postindustrial processes in economy. For example, the most important current objective of management accounting is planning and budgeting, but in the future, according to respondents from all the focus groups, the significance of this trend for accountants will drop significantly, the new objectives which have not previously been the subject of managerial accounting will come, they are, first of all, the implementation of business strategies, development of optimal business model (Figure 2).

As the most important competencies in the field of management accounting, respondents have indicated: 1. Skills in the methods the accounting of expenses and calculation of the cost of

production (15.9% of the total number of points); 2. The ability to form an effective system of planning (budgeting) (14.6%); 3. Collection and analysis of data for decision making (14.2%).

Figure 2
COMPARISON OF THE GOALS FACING ACCOUNTANTS ENGAGED IN MANAGEMENT ACCOUNTING IN DIFFERENT HISTORICAL STAGES OF DEVELOPMENT (POINTS FOR ALL RESPONDENTS)



The results confirm that the role of an accountant is currently and significantly being changed, accountant is increasingly involved in the process of developing business strategy, and management accounting system acquires strategic direction. Whilst, management accounting functions and objects are becoming wider, that requires improvements in its methods and tools.

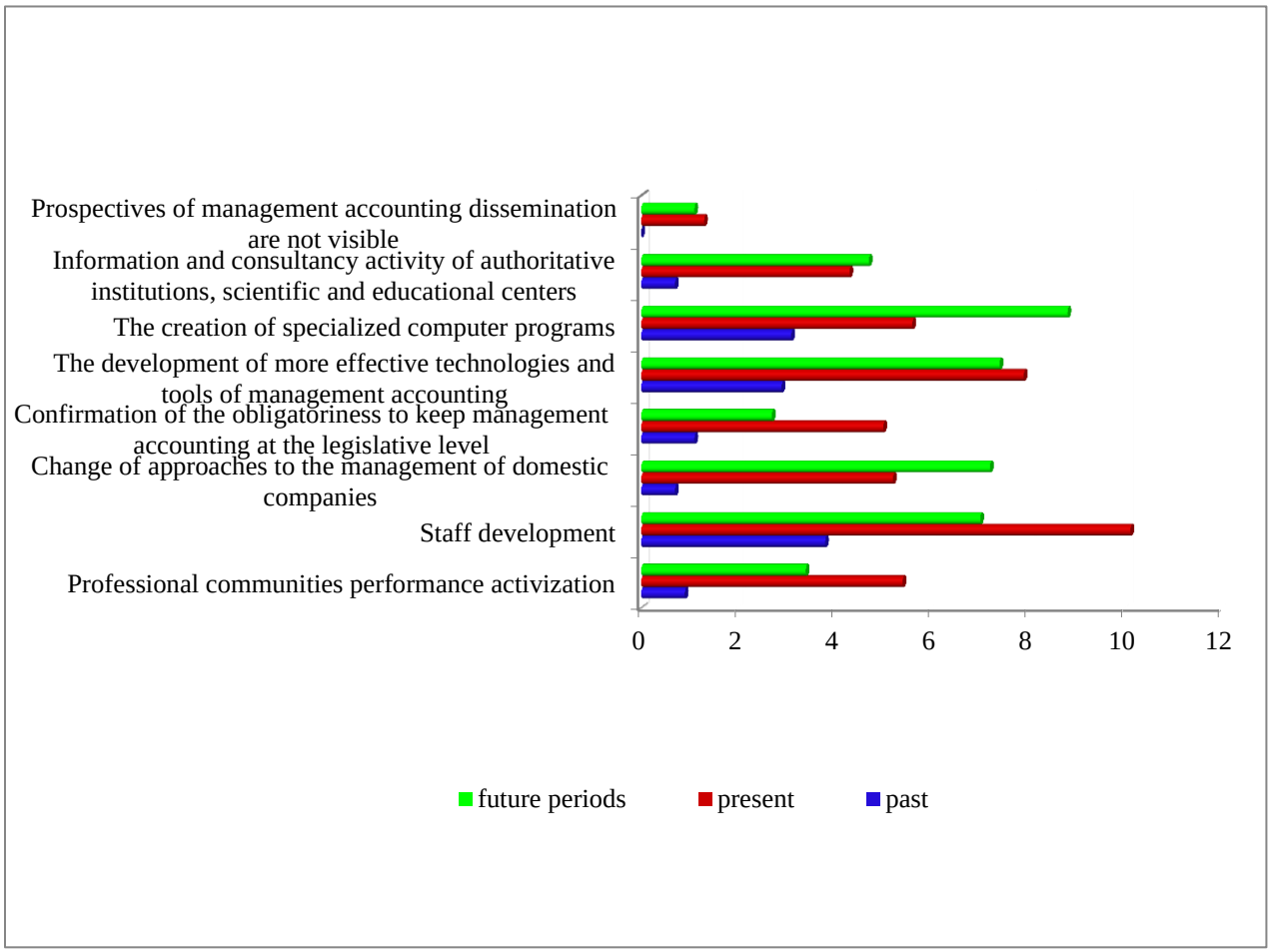
Identification of Opportunities and Limitations Of The Current System Of Management Accounting.

The largest number of respondents (24.2%) as the primary limiter for distribution management accounting sees the size of the Organization, believing that "management accounting is introduced mostly in a large corporations and agricultural holdings". An important factor is the availability of qualified staff, capable to apply effectively management accounting tools for the formulation of relevant information. Ranked third as a factor encouraging the greatest management accounting, according to respondents, is the presence of claims by shareholders and owners (14.2%).

In the next stage, the respondents were asked to rate the directions of further development of management accounting in Russia. As the most significant factor contributing to the dissemination of management accounting, were mentioned "creation of specialized software",

the importance of this factor was 21.1%, followed by the higher "qualifications of staff" which is 20.9%.

Figure 3
DISTRIBUTION OF THE SIGNIFICANCE DIRECTIONS OF DEVELOPMENT OF MANAGEMENT ACCOUNTING IN THE PAST, PRESENT AND FUTURE (% OF THE TOTAL AMOUNT DISTRIBUTED POINTS)



Let us mention that only 3% of the amount of distributed points were relegated in favor of the opinion that "the data produced in management accounting system is sufficient for the adoption of effective management decisions" that was explained by us as the complete lack of prospects for further dissemination of managerial accounting.

Further the trends of development of management accounting in Russia in historical retrospect have been analyzed, as a result, it has been mentioned that, at present, the staff is the most important factor in the development of management accounting; although in the future this will become less meaningful and the factor "creation of specialized soft ware" will be the most important (see Figure 3).

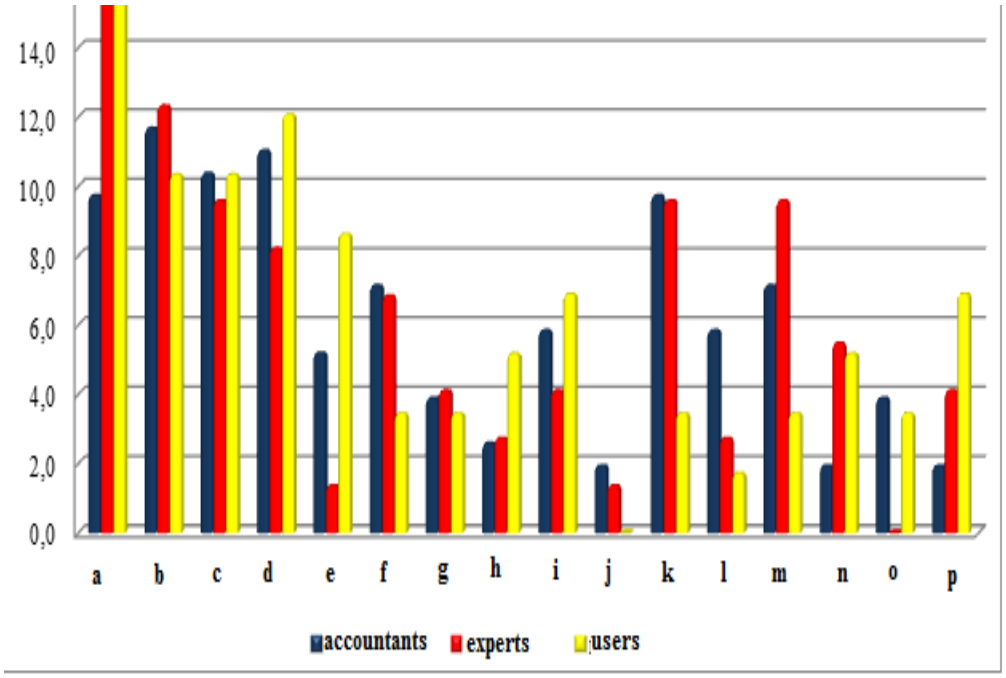
Table 1
THE RESULTS OF THE ASSESSMENT OF THE VIEWS OF RESPONDENTS ON THE IMPORTANCE AND VALUE OF INFORMATIONTECHNOLOGY ON MANAGEMENT ACCOUNTING

Parameters of the survey	In the aggregate for all respondents, %	Rank
Budgeting	11.2	1
Forecasting	10.4	2
Strategic management accounting	5.4	7
Standard cost method (normative method of expenses accounting)	3.7	15
Direct costing method	4.8	10
Total quality management (TQM)	5.0	9
Calculation of value added	4.0	13
Economic value added	2.4	18
System of balanced indicators	4.6	11
Expenses accounting by activity (AB-costing "ABC" method, activity-based costing)	6.2	5
Management of responsibility centers	5.1	8
Management reporting	9.0	3
Managerial analysis	8.1	4
KPI-technology	3.1	16
CVP analysis (break-even analysis)	4.3	12
Management accounting of business model of the enterprise	2.9	17
Cost accounting and calculation of the cost of production	6.1	6
Calculation of the last operation ("just in time" JIT)	3.8	14
Total	100.0	x

Figure 4 Distribution of factors importance, the most influencing on management accounting technologies: a) Information technology; b) Crisis processes in the economy; c)

Changes in approaches to business management; d)The emergence of new accounting of computer programs; e) Tactic of consumer orientation; f) New management style (new demands of owners, shareholders, founders); g) New external reporting requirements; h) Globalization, the expansion of foreign trade and export-import operations; i) Tactics
targeting quality; j) Advice of external consultants) (activities of professional communities); k) Introduction of new technologies in manufacture; l) The emergence of new economic activities; m) Complexity of business structure; n) The emergence of new objects; o) Increased attention to the environmental dimension of the activities of the enterprise and socially responsible behaviour; p) Arrival of foreign owners to the company (partners,consultants).

FIGURE 4.



Dissemination of new methods of management accounting depends on a variety of internal and external factors. Among the most significant respondents has mentioned: information technology (13% of all respondents assigned points); crisis processes in the economy (11.6%); the emergence of new accounting software (10.5%).

It should be noted that information technology, which in addition to specialized computer programs can include cloud, neural networks, digital data exchange tools and other tools for efficient processing of sorting, storing and retrieving data, to facilitate the implementation of the process of human interaction and computer science, focus-group "scientists" recognized as the most significant (Figure 4).

Scientists also appreciated the importance of factors such as: crisis processes in the economy-12.3%; changes in ways of enterprise management - 9.6%; the introduction of new technologies in production-9.6%; the increasing complexity of business structure-9.6%.

Table 2
THE RESULTS OF THE EVALUATION OF THE IMPORTANCE OF TECHNOLOGY OF MANAGEMENT ACCOUNTING (IN% OF TOTAL POINTS ASSIGNED IN THE CORRESPONDING TIME INTERVAL, FOR ALL RESPONDENTS)

Technology of management accounting	Historicalperiod	Current time	Future
Budgeting	13.4	12.3	9.3
Forecasting	7.6	10.0	9.7
Strategic management accounting	3.7	4.1	6.8
Standard cost method (normative method of expenses accounting)	8.5	3.1	2.3
Direct costing method	3.4	5.1	2.7
Total quality management (TQM)	5.2	5.5	5.6
Calculation of value added	3.0	3.7	3.7
Economic value added	2.7	2.1	4.1
System of balanced indicators	3.4	4.9	5.8
Expenses accounting by activity (AB-costing "ABC" method, activity-based costing)	3.4	6.0	5.6
Management of responsibility centers	4.9	6.4	7.2
Management reporting	6.7	9.5	9.3
Managerial analysis	6.1	7.4	7.6
KPI-technology	4.6	3.4	3.9
CVP analysis (break-even analysis)	7.0	4.7	5.6
Management accounting of business model of the enterprise	2.1	2.6	4.5
Cost accounting and calculation of the cost of production	11.0	5.5	3.1
Calculation of the last operation ("just in time" JIT)	3.4	3.8	3.3
Total	100.0	100.0	100.0

DISCUSSIONS

General discussion results in scientific-expert community of methodical aspects of management accounting development and their correlation with the results of the research in this area of study confirms the authors view that traditional technologies such as cost accounting, calculation and budgeting remain dominant in management accounting system while one of the most distinct restrictions of further development of management accounting is limitation and conservative views on the objective of management accounting recording. Management accounting is often equated with the term "cost accounting", which severely restricts its tools, goals and ways of information production. Furthermore, the current system of management accounting in Russia should be more adapted to the diagnosis of macroeconomic factors and external environment of an economic entity, in this context it requires theoretical underpinning and methodological formation of special models (subsystem) of management accounting for

usage in conditions of crisis processes in the economy (Bobryshev 2015; Bobryshev, Uryadova, Lyubenkova,Yakovenko and Alekseeva 2014).

The study does not contradict the fundamental works of Russian authors in accounting (Shigaev 2010; Sidorova 2012; Vahrushina 2014; Kostukova, Elchaninova and Manzhosova 2009; Shyrobokov, Kosteva and Barekova 2007) and others.

The results of the study allowed to conclude that opportunities and limiters of management accounting methodological development are largely supported by the interpretation of the autonomy of this scientific direction that many scientists both in Russia and in the international practice (Horngren, Datar and Foster 2003; Sokolov 2000) identified with the term "cost accounting", finding it difficult to draw a clear line between them. This
largely limits its toolkit, objectives and ways to develop information. There is another point of view, according to which management accounting is more voluminous, includes "processes for the collection, preparation and analytical processing of different information of accounting and not accounting nature, providing the necessary data for business management system" (Boyns and Edwards 2013; Satubaldin 1980; Bulgakov 2006; Rozhnova 2015, and others).

Discovered patterns are comparable with the results of the development prospects of evaluation of management accounting in developing countries (Hopper, Tsamenyi, Uddin and Wickramasinghe 2009; Anderson and Lanen 1999).

CONCLUSION

On the basis of the expert survey, we have formulated a number of conclusions, patterns and determinants:

1. While studying the enterprises functioning practice, where management accounting system is implemented and successfully used, we have found that they are basically large enterprises, employing more than 1000 people (33.3%), representing the holding structure type (in the second place there are enterprises with employees number from 100 to 200 people (20%), small business patterns (with less than 100 people) represent the smallest share of those enterprises that use or introduce a system of management accounting (7.1%); 40% of them are limited liability companies, 53.3% are joint-stock companies, 6.7% are other organizational-legal forms. Industry classification of establishment of enterprises is very diverse: 39.8% are from agrarian sector of the economy, 21.7% are from trade, 16.3% are from construction. The number of accounting department employees for such enterprises in 47% of cases is up to 10 people, in 26% of companies the number of employees successfully using the system of management accounting varies from 10 to 30 people, in 13% of enterprises it ranges from 50 to 100 employees.

2. Availability of functioning system of management accounting in an enterprise is often justified by experts only by the size of organization, suggesting that it may be introduced only in large economic entities, while in world practice this system is quite widespread not only in middle-sized, but also in small business patterns, as well as in non-profit organizations. Currently in our country only the first studies on the formation of management accounting system in budgetary institutions are appearing (Vahrushina and Malinovskaya 2014; Tsapulina, Romanova and Ilyina 2015; Vahrushina 2016; Vahrushina 2015), we also consider this direction to be promising and establishing new methodological peculiarities of accounting science.

3. Contrary to established practices in management accounting at the international level, in Russia such a goal as "interpreting and reporting the results of activities of management accounting" is not considered to be significant. Underestimation of such an important factor in our view leads to the problem that such competence is either not formed or acquired after some period of time among specialists. Fragmentary usage of similar skills, in our opinion, does not allow management personnel to fully look at advantages of information, which is formed in the framework of management accounting and consequently hinders its development and distribution.

4. Managerial accounting should not be limited to the collection and analysis of data needed for decision-making, in accordance with the tendencies of post-industrial economic development the need for making recommendations for the development of an economic entity becomes more and more popular as well as the

description of its business model and the macroeconomic environment in which it functions, development of recommendations and alternatives for operational and strategic nature concerning the directions of further development.

5. Many technologies that were effective in the past, according to respondents, will become considerably less popular in the future. Among the technologies that will become significantly more important in the long term, respondents identified: strategic management accounting, management accounting of business model of the enterprise, the concept of the balanced scorecard, concept of economic value added.

6. During the expert poll it was revealed that a pattern according to which if the organization is larger in size, and in the number of accounting employees, the greater the amount of management accounting tools it uses effectively. This fact creates the preconditions for practical improvement of management accounting systems in relation to the characteristics of operation of small and medium-sized businesses. These issues are discussed in particular in the works: (Perren and Grant 2000; Amat, Carmona and Roberts 1994).

7. The effectiveness of technology in terms of materiality generated information for decision-making, according to respondents, dominates, that is more important in its implementation than the laboriousness of this technology or the costs associated with its acquisition and subsequent use.

REFERENCES

Abernethy, M.A and Brownell, P (1999). The role of budgets in organizations facing strategic change: An exploratory study. *Accounting, Organizations and Society*, 24 (3)189-204.

Amat, J, Carmona, S. and Roberts, H. (1994). Context and change in management accounting systems: a Spanish case study. *Management Accounting Research*, 5 (2)107-122.

Anderson, S.W. and Lanen, W.N (1999). Economic transition strategy and the evolution of management accounting practices: The case of India. *Accounting, Organizations and Society*, 24 (5-6): 379-412.

Babich, O.V and Mityuchenko, L.S (2016). Role of accountability management in the activity of industrial enterprises. *International Review of Management and Marketing*, 6(6) 1-6.

Bobryshev, A.N. Elchaninova, O.V. and Tatarinova, M.N. et al., (2015). Management Accounting in Russia: Problems of Theoretical Study and Practical Application in the Economic Crisis. *Journal of Advanced Research in Law and Economics (Volume VI, Winter*), 3(13): 511-519.

Bobryshev, A.N. et al. (2015). The Concept of Management Accounting in Crisis Conditions. *Journal of Advanced Research in Law and Economics (Volume VI, Winter)*, 3 (13): 520-527.

Bobryshev, A.N., Uryadova, T.N., Lyubenkova, E. P, Yakovenko, V.S. and Alekseeva, O.A., (2014). Analytical and management approaches to modeling of the accounting balance sheet. *Life Sci J.*, 11(8): 502-506.

Boyns, T. and Edwards R. (2013). *A History of Management Accounting: the British Experience*. New York: Routledge.

Brownell, P. (1983). Leadership style, budgetary and management participation behavior. *Accounting, Organizations and Society*, 8(4) 307-321

Bulgakov, S.V (2006). *Managerial accounting: problems of the theory*: Monograph. Voronezh: Publishing house of Voronezh State University, p. 160.

Burritt, R.L. and Schaltegger, S (2010). Sustainability accounting and reporting: Fad or trend? *Accounting, Auditing & Accountability Journal*, 23(7) 829-846.

Burns, J. and Scapens, R.W. (2000). Conceptualizing a management accounting change: An institutional framework. *Management Accounting Research*, 11(1) 3-25.

Busco, C. and Scapens, R.W (2011). Management accounting systems and organisational culture: Interpreting their linkages and processes of change.*You Research in Accounting and Management*, 8 (4): 320-357.

Butler, S.A. and Ghosh, D (2015) Individual differences in management accounting judgments and decision making. *British Accounting Review*, 47(1): 33-45.

Chenhall, R. and Langfield-Smith, K (1998). Factors influencing the role of management accounting in the development of performance measures within organizational change programs. *Management Accounting Research*, 9 (4): 361-386.

Covaleski, M.A. and Dirsmith, M.W (1983). Budgeting as a means for control and loose ramp beam. coupling. *Accounting, Organizations and Society*, 8 (4): 323-340.

Davison, J. (2015). Visualising accounting: An interdisciplinary review and synthesis. *Accounting and Business Research*, 45(2): 121-165.

Ezzame l. M., Willmott H. and Worthington F. (2008). Manufacturing shareholder value: The role of accounting in organizational transformation. *Accounting, Organizations and Society*, 33 (2-3): 107-140.

Hopper, T., Tsamenyi, M., Uddin, S. and Wickramasinghe, D. (2009). Management accounting in less developed countries: What is known and needs knowing. *Accounting, Auditing and Accountability Journal*, 22 (3): 469-514.

Hopwood, A.G. (1987). The archeology of accounting systems. *Accounting, Organizations and Society*, 12 (3): 207-234.

Horngren, C.T., Datar, S.M. and Foster, G. (2003). *Cost Accounting: A Management Emphasis*. New Jersey: Prentice Hall.

Johansson, T. and Siverbo, S. (2009). Why is research on management accounting change not explicitly evolutionary? Taking the next step in the conceptualisation of management accounting change. *Management Accounting Research*, 20(2) 146-162.

Johnson, H. T. and Kaplan, R. S. (1987). *Relevance lost: The Rise and Fall of Management Accounting*. Boston: Harvard Business School Press.

Jönsson, S. (1998). Relate management accounting research to management work! *Accounting, Organizations and Society*, 23(4) 411-434

Qu, S.Q. and Cooper, D.J. (2011). The role of inscriptions in are a balanced scorecard. *Accounting, Organizations and Society*, 36(6) 344-362.

Kaplan, R.S. and Norton, D.P. (1992). The balanced scorecard-measures that drive performance. *Harvard Business Review*, 70(1) 71-79.

Kostyukova, E.I., Elchaninova, O.V. and Manzhosova, I.B. (2009). Features of the budget and organization of information flows in the budgeting system of an enterprise. Scientific and technical journal of St. Petersburg State Polytechnic University. *Economic science*, 2-1(75): 202-208.

Klychova, G.S, Zakirova, A.R, Mukhamedzyanov, K.Z. and Faskhutdinova, M.S. (2014). Management reporting and its use for information ensuring of agriculture organization management. *Mediterranean Journal of Social Sciences*, 5 (24): 104-110.

Libby, T., Salterio, S.E. and Webb, A. (2004). The balanced scorecard: The effects of accountability and process assurance on management judgment. *The Accounting Review*, 79 (4): 1075-1094.

Martinsons, M., Davison, R. and Tse, D. (1999). The balanced scorecard: A foundation for the strategic management of information systems. *Decision Support Systems*, 25 (1): 71-88.

Nagar, Venky, and Gwen Yu. (2014). "Accounting for Crises." *American Economic Journal: Macroeconomics*, 6 (3): 184-213.

Otley, D.T. (1980). The contingency theory of management accounting: Achievement and prognosis. *Accounting, Organizations and Society*, 5 (4): 413-428

Parker, L.D. (2012). You management accounting research: Assessing the deliverables and relevance. *Critical Perspectives on Accounting*, 23 (1): 54-70

Perren, l. and Grant, P. (2000). The evolution of management accounting routines in small businesses: A social construction perspective. Management Accounting Research, 11 (4): 391-411.

Rozhnova, O.V. (2015). Management accounting as a global accounting science. A*ccounting. Analysis. Audit*, 6: 17-25.

Satubaldin, S.S. (1980). *Accounting production costs in the United States.* Moscow: Finance and statistics.

Scapens, R.W. (2006). Understanding management accounting practices: A personal journey. *British Accounting Review*, 38 (1): 1-30.

Schleicher, T., Walker, M. (2015) Are interim management statements, redundant. *Accounting and Business Research* 45 (2): 229-255.

Shyrobokov, V.G., Kosteva, N.N. and Barekova, L.N. (2007). Problems of formation and development of management accounting in Russia. *Economics of Agricultural and Processing Enterprises*, 1: 48-51.

Shigaev, A. I. (2010). *Accounting and analytical provision of value-oriented management*. Kazan: Kazan State University, p. 244.

Sidorova, M.I. (2012). Methods of mathematical modeling in modern management accounting. *Scientific-analytical journal Actual Problems of Socio-Economic Development of Russia*, 1: 16-22.

Smith, J.A., Morris, J. and Ezzamel, M. (2005). Organizational change, outsourcing and the impact on management accounting. *The British Accounting Review*, 37(4): 415-441.

Sokolov, Ya. V. (2000). Managerial accounting: myth or reality? *Accounting*, 18: 50-52.

Tsapulina, F.H., Romanova, O.A. and Ilyina, N.V. (2015). The modern concept of management accounting of the budget institution. *Contemporary problems of science and education*, 1-1: 782.

Vahrushina, M.A. (2014). Problems and prospects of development of the Russian management accounting. *International accounting*, 33 (327): 12-23.

Vahrushina, M.A. and Malinovskaya, M.V. (2014). Management accounting of health care state (municipal) institutions: organizational approaches. *International accounting,* 41(335): 2-16.

Vahrushina, M.A. (2016). Management accounting as a modern paradigm of budgetary institutions account. *Accounting. Analysis. Audit,* 1: 74-89.

Vahrushina, M. A. (2015). *Management accounting in public (municipal) institutions: methodology, organization and directions of perfection: monograph*. Moscow: Scientifictechnologies.

THE DEVELOPMENT OF INNOVATIVE STARTUPS IN RUSSIA: THE REGIONAL ASPECT

Mikhail Yakovlevich Veselovsky, University Of Technology
Alla Vladimirovna Nikonorova, Moscow Witte University
Aleksandr Annayarovich Stepanov, Moscow City Pedagogical University
Natal'ya L'vovna Krasyukova, Financial University Under The Government Of The Russian Federation
Inna Vladimirovna Bitkina, Financial University Under The Government Of The Russian Federation

ABSTRACT

This paper examines some of the topical issues related to the development of innovative startups in Russia. The authors propose a methodology for assessing the viability of innovative startups, which, if implemented, may help new startups survive their first three years of business. The paper shares the findings of a study of the latest trends on startups both in Russia and overseas, analyzes the degree of activity with which startups are emerging, and explores specific characteristics of entrepreneurs developing their business from scratch, like gender and age. The authors analyze the specificity of Russian practice in terms of developing and implementing the fundamental idea of a startup and provide a rationale for the need to enhance the current legislative framework, which is inhibiting the development of this promising area. The paper also determines the major sources of funding for innovative startups in Russia and shares the findings of a comparative analysis of ratios in the volume of funds borrowed to implement startups. At present, there is a concern about the lack of proper mechanisms for assessing the viability of innovative startups, as well as about the ability to effectively attract outside funding. Among the novel and promising ways to attract investments to help implement startups in the Russian market is crowd-funding. Employing this tool is currently hampered by the lack of proper organizational and legislative regulations respecting this kind of activity. The development of startups in Russia may facilitate boosts in the population's economic activity levels and help create more jobs. It is to help this cause that the authors have developed a specific methodology for assessing the viability of innovative startups.

Keywords: startups in Russia, innovative product, development of new projects, investments, minimizing risk

INTRODUCTION

Achieving economic growth can only be possible through creating the right conditions for unlocking the nation's existing potential. Positive dynamics in economic indicators is something that is attained via the effect of a number of factors, including the development of innovative startups. Developing and implementing innovations may serve as a substantial competitive advantage for a startup. If implemented in a well-thought-out manner, innovations may be a key factor in the success of a startup. It is becoming a priority today to unlock the nation's true

innovation potential. And the implementation of innovative startups comes across as one of the more flexible tools for fashioning a knowledge based-economy in Russia.

Research into startups is nowadays a burgeoning and promising area, testimony to which are works by P. Boland, B. Riggo, S. Phelan, A. Robb, R. Seamans, J. Rosenberg, D. Marron, and many others.This paper employs a theoretical-methodological approach to systematizing activity on the development of startups.The systematization and analysis of the data explored made it possible for the authors to draw the conclusion about the need to employ additional methodologies for assessing the viability of such novel business projects as startups. Just like in other countries around the world, activity on the development of startups in Russia is full of prospects and is sought after by the more active portion of the population.

This study's topic owes its relevance to the current lack of research into the subject and the need to use more efficiently all the resources at hand that could be conducive to boosts in the quality of people's life. Under conditions of the current unstable economic situation, for many people with an active stance in life startups are becoming a means of achieving both their economic and personal goals. Developing and implementing an innovation may serve as a substantial competitive advantage for a project.

METHODOLOGY

As part of this study, the authors conducted an analysis of statistical data from national and foreign practice, explored the specificity of activity on implementing startups in the Russian Federation, and drew inferences regarding the more effective organizational structures for new companies.

The methodological basis for the study was a combination of analysis, synthesis, a structural-organizational approach, cause-and-effect relationship identification, and economic-mathematical modeling.

The authors' detailed analysis of literary sources helped identify a set of well-researched issues related to startup development, as well as determine and explore issues that might need additional or further research.

A startup is a temporary or constant establishment (a small organization/company/project) in any sector of the economy that is created (or planned to be created) with a view to searching for and implementing a scalable, reproducible, developable, and viable business model. Startups are characterized by a relatively short history of operating activity with a pronounced upturn in business in the initial stages and an orientation toward a prospective, often uncertain, international market.

Compared with a traditional business, a startup is characterized by:

1) Having an innovation basis, being a business that has never existed before;

2) The immediate availability of investors willing to invest their money in the company at the very beginning of its existence;

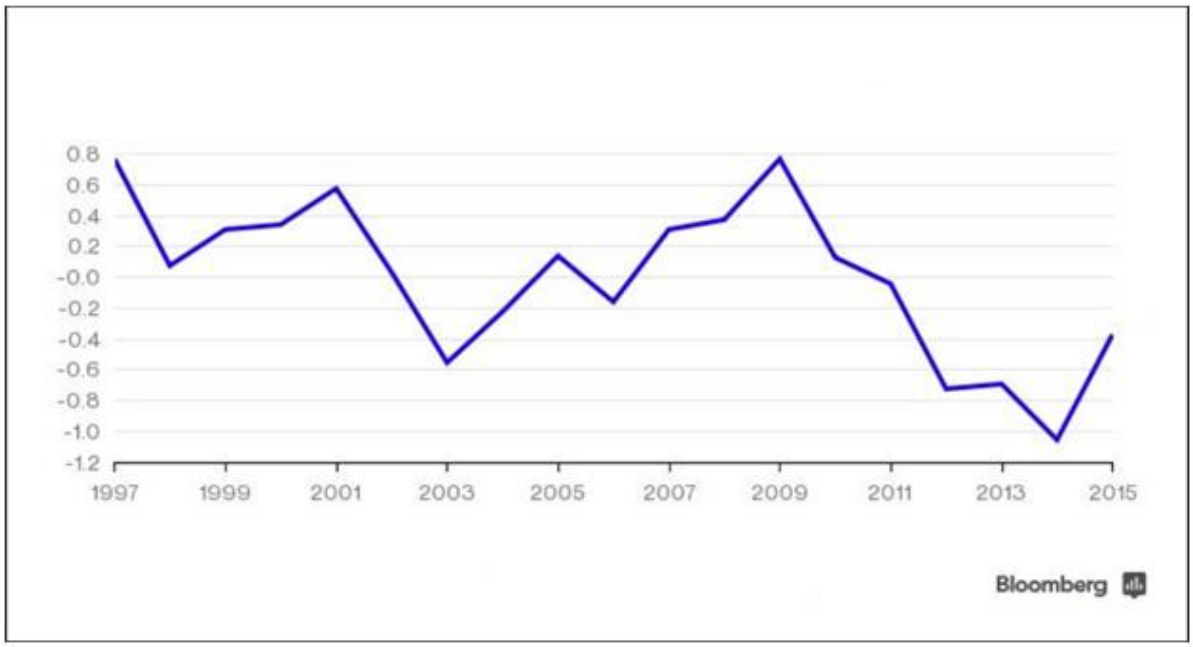
3) Being predicated on the very ideas the investors are willing to invest in [1].

Every year, lots of companies emerge around the globe that possess high growth potential predicated on an innovative product and a strategy aimed at generating profits from innovations [2].

Below are the findings of an analysis of some of the key trends in startup dynamics conducted based on data from the Ewing Marion Kauffman Foundation research center, as well as Russia's Federal State Statistics Service.

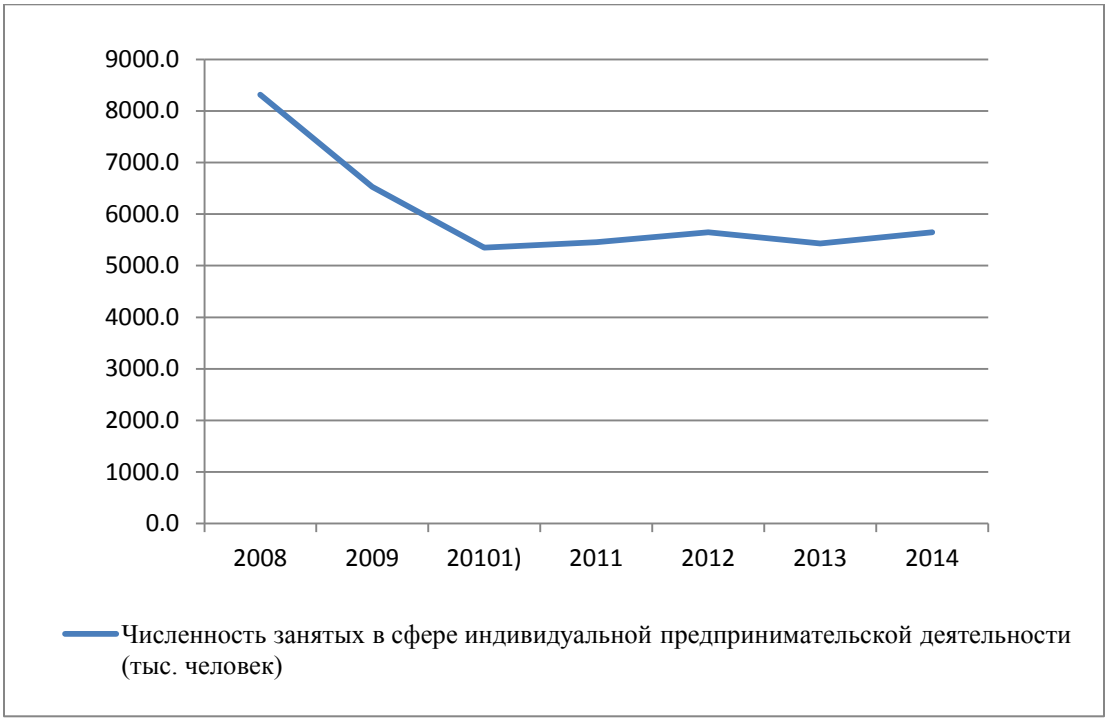
The analysis of the information under examination may serve as a basis for gaining an insight into and forecasting existing processes both around the world and across the Russian Federation. Figure 1 displays data for the Kauffman Index of Startup Activity, covering the United States (1997–2015). The Kauffman Index, developed by Robert Fairlie, is a generalized, combined indicator calculated based on three other indicators: the Rate of New Entrepreneurs in the economy, calculated as the percentage of adults becoming entrepreneurs in a given month, the Opportunity Share of New Entrepreneurs, calculated as the percentage of new entrepreneurs driven primarily by "opportunity" vs. "necessity", and the Startup Density of a region, measured as the number of new employer businesses normalized by total business population.

Figure 1
KAUFFMAN INDEX OF STARTUP ACTIVITY (1997–2015).



As is evidenced in the graph above [3,4], the startup activity index declined from 2001 to 2003 and from 2009 to 2014. There was a spike in activity from 2003 to 2009, and then in 2014. Thus, the 2008 financial crisis began to have a negative impact on the sector within a year if its commencement.

Figure 2
NUMBER OF PEOPLE ENGAGED IN INDIVIDUAL ENTREPRENEURSHIP ACROSS PARTICULAR TYPES OF ECONOMIC ACTIVITY IN THE RUSSIAN FEDERATION (THOUSAND PEOPLE) [5].



—— Number of people engaged in individual entrepreneurship in the Russian Federation (thousand people)

There is huge potential for startup development in Russia. The most suitable and convenient form of implementing new startups in the Russian Federation is the status of an individual entrepreneur. Citizens may engage in entrepreneurial activity without having to establish a legal person as an individual entrepreneur as soon as they have been registered as one. The easy procedure for the registration and control of the activity of individual entrepreneurs perfectly suits the conditions of commencing business for the market's new participants. A figure below illustrates the dynamics of change in corresponding indicators in time.

As is seen in Figure 2, a general trend prevailing in the market in a certain period of time tends to be characteristic of individual entrepreneurship as well. During the recessional years 2008 and 2009, the number of people engaged in individual entrepreneurship shrank by a third. No considerable change in the number of individual entrepreneurs has been observed since 2010.

Figure 3
NUMBER OF WAGE WORKERS EMPLOYED AT INDIVIDUAL ENTERPRISES ACROSS PARTICULAR TYPES OF ECONOMIC ACTIVITY IN THE RUSSIAN FEDERATION (THOUSAND PEOPLE).

—— Number of wage workers in employed at individual enterprises across particular types of economic activity in the Russian Federation (thousand people)

Of interest are also the findings of an analysis of the number of wage workers employed at individual enterprises (Figure 3).

The general trend in this case is similar to the one described above, although sharp declines occurred in a shorter period of time, namely from 2008 to mid-2009. The number of wage workers employed by entrepreneurial entities declined gradually from 2009 to 2013, and then it started growing beginning in mid-2013.

The data presented in the above figures provide an insight into the dynamics of startup development over time. The analysis of this information makes it possible to draw the conclusion about the market situation stabilizing gradually overall.

In the global economy, the location of resources for entrepreneurial activity no longer matters as much as before, as there has taken place a transformation of national and regional business into establishments that are run based on business networking and computer networking [6].

Prior to the shift to market principles, the national economy ran based on the single national-economic complex, which encompassed the entire territory of the USSR and the member-states within the Council for Mutual Economic Assistance, relying on corresponding energy, transportation, and information infrastructure. Novel spatial and structural forms of organization, like complexes, clusters, and enterprises structured like a network, began to form in the Soviet Union in the 1970s, as was the case around the world generally at the time [6].

Currently, we are witnessing dynamic changes in the performance of the startup sector under conditions of innovation processes being implemented. The robust implementation of novel solutions is reflecting on the volume of innovative products turned out. This can be illustrated using the figures from Table 1 [5].

Table 1
MAJOR INDICATORS OF INNOVATION ACTIVITY (MILLION RUBLES)

	Major indicators of innovation activity	Unit of measure, worth of	Years				
			2010	2011	2012	2013	2014
1.	Shipped goods of own manufacture; carried out works and services using own resources	million rubles	25,794,618.1	33,407,033.4	35,944,433.7	38,334,530.2	41,233,490.9
	including goods, works, services		1,243,712.5	2,106,740.7	2,872,905.1	3,507,866.0	3,579,923.8
2.	Expenditure on technological innovation: at then-current prices	million rubles	400,803.8	733,815.9	904,560.8	1,112,429.2	1,211,897.1

The innovation process is associated with the creation, assimilation, and distribution of innovations and is a means of meeting social needs based on the implementation of scientific achievements and technology [7]. Over the last 5 years, the number of goods of own production and works and services carried out using own resources has been continually rising.

As far as the activity of organizations across the constituents of the Russian Federation (Table 2), the way in terms of the innovation activity criterion is led by Central Federal District, including the city of Moscow, Northwestern Federal District, including the city of Saint-Petersburg, and Volga (Privolzhsky) Federal District [5].

The specificity of business in Russia consists in the prevalence of vertical (hierarchical) relationships [6]. In this regard, the organizational structures of many companies are currently undergoing major changes. Startups are the more dynamically changing and adapting entities. Although individual work in developing a startup is not an exception, implementing one, nonetheless, engages a small number of people each of whom, normally, performs specific duties of his own that do not intersect with those of the rest of the participants. As a consequence, they get horizontal relationships established between them.

Startup businesses have a very high failure rate. Research indicates that 70 to 90% of all startups end up failing eventually, which is an extremely high rate of failure [8].

TABLE 2
INNOVATION ACTIVITY OF ORGANIZATIONS (THE RELATIVE SHARE OF ORGANIZATIONS THAT IMPLEMENTED TECHNOLOGICAL, ORGANIZATIONAL,AND MARKETING INNOVATIONS IN THE THEN-CURRENT YEAR IN THE TOTALNUMBER OF ORGANIZATIONS RESEARCHED) ACROSS THE CONSTITUENTS OFTHE RUSSIAN FEDERATION (%)

Constituent of the Russian Federation	2010	2011	2012	2013	2014
Russian Federation	9.5	10.4	10.3	10.1	9.9
Central Federal District	8.6	10.2	10.9	10.7	10.9
Moscow	13.3	18.6	18.6	18.3	18.8
Northwestern Federal District	9.4	11.2	11.0	10.7	10.3
Saint Petersburg	13.0	18.9	18.8	18.0	18.9
Southern Federal District	7.5	6.5	7.4	7.2	7.7
North Caucasian Federal District	6.2	5.2	6.4	5.9	6.5
Volga (Privolzhsky) Federal District	12.3	12.7	11.9	11.7	11.4
Ural Federal District	11.5	11.5	10.6	9.6	8.9
Siberian Federal District	8.2	8.8	8.5	9.1	8.8
Far Eastern Federal District	8.6	11.2	10.8	9.5	8.9
Crimean Federal District	…	…	…	…	9.6

In this regard, there is a concern about the ability to assess the viability of startups. The findings of the authors' study indicate that assessing the viability of innovative startups must involve the following elements:

- the level and speed of knowledge capitalization;
- the well-balancedness of the system of borrowed funding;
- the availability of a worthwhile and innovative business idea, one that may suggest the possibility of implementing novel digital technology;
- the use of novel methodologies for startup development in implementing startups (e.g., the lean startup);
- the quick adaptation of projects to existing outside conditions;
- founders possessing enough experience;
- following a horizontal organizational management structure;
- the availability of a promising market niche.

Startups are a significant factor in economic development. In 2014, as much as $48.3 billion was invested in startups in the US alone. A major portion of these funds was invested in companies specializing in software development and biotechnology [9].

Many new companies turn to borrowed capital, loans in particular. Borrowed funding accounts for nearly 40% of startups' initial capital [10].

At present, the most common sources of funding for innovative startups across the Russian Federation are:

- own funds;
- loans;
- grants;
- funds from investors;
- crowd-funding.

Russia currently possesses a relevant market for Internet startups and projects, relevant operating funds, relevant infrastructure, and relevant state support [2].

Companies whose owners possess extensive work experience tend to have more loans and less investment in stock. Thus, startups that are focused on research and development whose owners have extensive production experience are characterized by a higher coefficient on borrowed funds than startups that do not have this characteristic [11].

Russia currently has a system of grants for scientists and researchers in place that helps provide financial backing for promising ideas [12].

State grants are quite a popular form of attracting investment, mainly among non-profit organizations. Grants from the state or a corporation are provided on a gratuitous basis, in cash or in kind [13].

Another promising means of attracting capital into a startup is crowd-funding. In Russia and around the world, there currently are operating a number of platforms that serve as an intermediary between startup organizers and those willing to invest in startups. Being part of a crowd-funding platform is currently a global trend. If in 2011 the global crowd-funding market had an estimated turnover of $1.490 billion, there was a 10-times increase in the period leading up to 2015 [14].

Entrepreneurs may often need some support in managing the company or assessing the economic potential of their product. Compared with business angels or venture capital funds, investors may lack special knowledge about the field. Yet, there is the "wisdom of the crowd" argument whereby the collective opinion of a group of individuals may prove more efficient in resolving corporate issues than that of sole individuals or smaller teams. Thus, many investors as a crowd may be more efficient than a few separate investors/shareholders [15], which may need to be taken into account by entrepreneurs just starting out, particularly under conditions of high uncertainty.

The unpredictability of changes in the external environment and the need to adapt swiftly to them may be viewed as the major factors behind the introduction and implementation of the concept of the lean startup, a new methodology, developed based on the works of Eric Ries, whereby entrepreneurs are encouraged to determine their major clients experimentally – by creating a minimally viable product and then assessing the reaction of clients to it. Based on experiment results, the entrepreneur can arrive at a conclusion as to whether or not he is following the right strategy and then "turn around" and change it [16]. One may regard as a lean startup a process that enables entrepreneurs to lower the level of uncertainty, which is normally present in the initial stages of the business, and thus improve their chances of a success [17].

In the initial stage of building their business, it may be useful for entrepreneurs to have some serious outside backing. By working with mentors, other entrepreneurs and instructors, business owners can stay on track, identify obstacles in their paths and change course whenever necessary [18].

In the authors' view, startup organizers in the Russian Federation ought to pay greater attention to the study of the afore-mentioned methodologies and try to implement them more actively in practical activity.

RESULTS

The analysis of the activity of startup companies was conducted based on statistical data spanning the period from 2010 to 2014, with the major focus being on organizations displaying innovative activity, as well as private individual entrepreneurs engaged in business development activity.

The authors' analysis leads to the conclusion that innovative startups are distinguished by high levels of capitalization of knowledge utilized in them. Depending on social-economic conditions, the number of new innovative startup projects may change tangibly in the course of time. Their number and success in the market are governed by both microeconomic and macroeconomic factors.

A startup may be viewed as having reached the launch stage, i.e. attained a readiness to engage in its basic business activity, when it:

– has a project team or relevant company personnel in place;

– has a well-substantiated and realistic business-plan ready;

– has a formalized and well-documented system of business processes, accounting, and tax reporting in place;

– has obtained all relevant registration and permit documentation;

– has relevant infrastructure for the turnout of products and provision of services (including the purchase or lease of relevant equipment, raw materials, and material supplies) in place;

– has implemented a pilot batch of its products or services [19].

The fact that in implementing Russian and foreign startups alike there always arises a concern about their viability signals the need to develop novel methodologies aimed at strengthening the new business establishments in the early stages of their operation.

The authors have developed a model for assessing startup viability. The model incorporates the following elements:

- the level and speed of knowledge capitalization;
- the well-balancedness of the system of borrowed funding;
- the availability of a worthwhile and innovative business idea, one that may suggest the possibility of implementing novel digital technology;
- the use of novel methodologies for startup development in implementing startups (e.g., the lean startup);
- the quick adaptation of projects to existing outside conditions;
- founders possessing enough experience;
- following a horizontal organizational management structure;
- the availability of a promising market niche.

Employing this model presupposes conducting consistent, detailed analysis of each element and then pinpointing sets of characteristics that are, first, key factors in the success of the innovative startup and, second, potential threats and challenges that may be facing it.

The results obtained may serve as a basis for making proper managerial decisions going forward.

In the Russian Federation, activity related to startup development is still in its incipient stages, which signals the need to conduct relevant research and develop methodologies that would be conducive to boosts in startup efficiency.

The process of resolving the above issues, which face just about any organizer of an innovative startup, ought to be integrated in nature and engage all participants in the business. It ought to be aimed at removing existing obstacles both in the organization and in the regulation of the activity of new participants in the market.

DISCUSSION

Resolving issues arising in connection with the development of innovative startups is a priority objective resolving which may help facilitate national economic growth. The fact that just 10–30% of all new projects manage to survive their first three years of business emphasizes the relevance of developing and implementing effective methodologies aimed at boosting startup viability.

The majority of estimates laid down in a startup's business plan undergo changes as early as the close of the first year of being in business [20]. In the earliest stages of any new business it may take a while to attract the attention of potential early users; further, it can prove even more difficult to actually convince someone to use your product or service [21].

A startup's financial state may be influenced by the structure of funding, which may reflect one way or another on the startup's solvency, liquidity, revenue, and profitability [13]. Therefore, in developing a funding algorithm, special attention ought to be paid to the initial stages in the implementation of the innovative project [22]. Startups may also begin work on their business plan without significant venture capital financing – in particular, in areas that require little capital investment, such as the development of mobile or cloud software applications [23].

The innovativeness of startups is about introducing into the market a product (a commodity or a service) that is not available in that market yet. That being said, even after the entrepreneur has explored the state of the market and performed all major commercial and financial calculations, that still may not lower risk by much [24]. This fact is clearly indicative of the need for startups to further refine their management decision-making methods.

CONCLUSION

The authors' study provides an insight into the major dimensions of startup development in the Russian Federation and suggests ways to boost the efficiency of startup projects through timely work on shoring up startup viability.

Utilizing the authors' characterization of successful startups may help startup founders focus from day one on building a sustainable business establishment.

Factors like the development of information technology and globalization are having a mixed effect on the process of development of new companies and projects. On the one hand, the development of technology may open up new, at times totally novel, vistas of opportunity for entrepreneurs, while, on the other, the development of startups may be hindered, and oftentimes even rendered impossible, by current processes of globalization. This is a time characterized by accelerating business processes, shorter timeframes for and smaller costs of shipping goods, while, sadly, most of the business areas that are dominated by cross-border corporations tend to be just shutting their doors of opportunity to small entrepreneurs.

Present-day companies are increasingly making use of network-like management and horizontal relationship practices. The use of digital technology is making it possible to conduct managerial activity and work with consumers in real time, while the implementation of information technology is opening up vast vistas for business development and helping boost the efficiency of activities undertaken.

This paper has looked into some of the major issues facing innovative startups which need to be resolved to ensure the successful development of this area of activity.

From a conceptual viewpoint, the principal purpose of this study was to develop a model for assessing the viability of startups. Among the elements of this model that are subject to integrated analysis are the level and speed of knowledge capitalization; the well-balancedness of the system of borrowed funding; the availability of a worthwhile and innovative business idea, one that may suggest the possibility of implementing novel digital technology; the use of novel methodologies for startup development in implementing startups; the quick adaptation of

projects to existing outside conditions; founders possessing enough experience; following a horizontal organizational management structure; the availability of a promising market niche.

The active development of innovative startups is expected to help boost the competitiveness of Russian goods and facilitate economic growth both regionally and nationally as a whole. Going forward, startups may become a substantial factor in bolstering the nation's economy.

REFERENCES

Latyshova LS, Shavaleeva LS (2014) Startap: Marketingovye resheniya na etape razrabotki i prodvizheniya [Startups: Making marketing-related decisions at the development and promotion stage]. Mekhanizatsiya Stroitel'stva, 7, 25–28.

Dylevskaya AI, Avilova VV (2014) Problemy i perspektivy razvitiya startap-kompanii [Issues in and prospects for the development of startup companies]. Vestnik Kazanskogo Tekhnologicheskogo Universiteta, 17(4) 325-329.

Fairlie RW, Morelix A, Reedy EJ, Russell J (2015) The 2015 Kauffman Index of Startup Activity: National trends. Retrieved from http://www.kauffman.org/~/media/kauffman_org/research%20reports%20and%20covers/2015/05/kauffman_index_startup_activity_national_trends_2015.pdf

Matthews S, Saraiva C (2015, May) Startups are making a comeback in America. Retrieved from http://www.bloomberg.com/news/articles/2015-05-28/startups-are-making-a-comeback-in-america

Federal State Statistics Service of the Russian Federation (2016) Nauka i Innovatsii [Science and Innovations]. Retrieved January 24, 2016, from http://www.gks.ru/wps/wcm/connect/rosstat_main/rosstat/ru/statistics/science_and_innovations/science/#

Usik NI (2015) Menedzhment innovatsionnogo razvitiya ekonomiki regionov Rossii [Management of the innovation development of the economy of Russia's regions]. Nauchnyi Zhurnal NIU ITMO. Seriya 'Ekonomika i Ekologicheskii Menedzhment', 2, 153–163.

Nikonorova AV (2012) Vnedrenie innovatsionnogo protsessa v deyatel'nost' predpriyatii sfery obrashcheniya [Implementing the innovation process in the activity of enterprises operating within the distribution sector]. Vestnik Belgorodskogo Universiteta Kooperatsii, Ekonomiki i Prava, 2, 361–364.

Barba R (2015a, January) For startup success in 2015, watch out for these top 20 reasons for startup failure. Retrieved from http://tech.co/startup-success-2015-watch-top-20-reasons-startup-failure-2015-01

Heckstall V (2015, April) Automation, efficiency, scalability: The keys to startup success. Retrieved from http://tech.co/automation-efficiency-scalability-keys-startup-success-2015-04

Rosenberg J, Marron D (2015, February) Tax policy and investment by startups and innovative firms. Available from http://www.taxpolicycenter.org/publications/tax-policy-and-investment-startups-and-innovative-firms

Robb A, Seamans R (2014, March) The role of R&D in entrepreneurial finance and performance. Available from http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2341631

Gurunyan TV (2013) Investitsionno-innovatsionnyi lift dlya malogo i srednego predprinimatel'stva: Voprosy finansirovaniya startapov [An investment-innovation elevator for small and medium-sized entrepreneurship: Issues related to the funding of startups]. In F. P. Tarasenko (Ed.), Aktual'nye problemy upravleniya i ekonomiki: Rossiiskii i zarubezhnyi opyt: Materialy Vserossiiskoi Nauchno-Prakticheskoi Konferentsii (s mezhdunarodnym uchastiem), Tomskii gosudarstvennyi universitet, 2013 [Topical issues in management and economics: Russian and foreign experience: Proceedings of the All-Russian Research-to-Practice Conference (attended by foreign guests), Tomsk State University, 2013] (pp. 171–176). Tomsk, Russia: Izdatel'stvo Tomskogo Gosudarstvennogo Universiteta.

Grebennikova VA, Yakhshibekyan AA (2015) Teoreticheskie osnovy optimizatsii struktury istochnikov finansirovaniya startapa na rannei stadii razvitiya [The theoretical foundations of the structure of funding for startups at the early stage of their development]. Ekonomika: Teoriya i Praktika, 2, 31–36.

Zlivko AP, Moskalenko IA (2015) Kraudfanding kak ekonomicheskaya podderzhka startapov molodezhi v Rossii [Crowd-funding as a form of economic support for youth startups in Russia]. Aprobatsiya, 3, 112–115.

Schwienbacher A, Larralde B (2010, September) Crowdfunding of small entrepreneurial ventures. Available from http://ssrn.com/abstract=1699183

DelVecchio J, White F, Phelan SE (2013, December) Tools for innovation management: A comparison of Lean Startup and the Stage Gate System. Available from http://ssrn.com/abstract=2534138

Boland P, Riggo B, Phelan SE (2013, November) Lean startup: Opportunity discovery or opportunity creation? Available from http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2534139

Sussman J (2016, November) Entrepreneurial launch code: Learn the keys to success. Retrieved from http://www.businessnewsdaily.com/4959-how-to-be-an-entrepreneur.html#sthash.gj3A1fKM.dpuf

Inshakov MO, Orlova AA (2014) Innovatsionnye startapy v Rossii: Problemy sozdaniya i marketingovogo prodvizheniya [Innovative startups in Russia: Issues in creating and promoting them through marketing]. Vestnik Volgogradskogo Gosudarstvennogo Universiteta. Seriya 3: Ekonomika. Ekologiya, 1, 66–76.

Vernikov VA (2014) Biznes-planirovanie startapov v kontekste privlecheniya venchurnykh investitsii [Business planning of startups in the context of attracting venture capital investments]. MIR (Modernizatsiya. Innovatsii. Razvitie), 5(4), 77–87.

Barba R (2015b, July) This is why your first user is vital to your startup's success. Retrieved from http://tech.co/first-user-vital-to-startup-success-2015-07

Polyakov NA (2012) Pryamoe gosudarstvennoe finansirovanie rannikh stadii perspektivnykh innovatsionnykh proektov [Direct government funding of the early stages of promising innovation projects]. Innovatsii, 8, 46–53.

Morse SC (2013, October) Startup Ltd.: Tax planning and initial incorporation location. Available from http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2275072

Strelka J, Orphanus D (2012) Startap-kompanii i innovatsii v Slovakii [Startup companies and innovations in Slovakia]. Rossiiskoe Predprinimatel'stvo, 6, 194–198.

SMALL BUSINESS IN INNOVATIVE DEVELOPMENT OF RUSSIA

Svetlana Zhura,Northern (Arctic) Federal University
Lidiya Ilyina, Institute of Management
Kristina Polozova, Institute of Management

.

ABSTRACT

Russia has taken a course of innovative development. Small enterprises play the crucial role in technological changes as they are rich in sources of innovation, which will give an opportunity to use new technologies and business processes, as well as to increase labour productivity and improve the quality of products and services. The article presents a study of small innovative business in Russia, which shows that the level of its development is quite low and significantly inferior to advanced foreign countries. At the same time, the analysis of development prospects after the adoption of the innovative development strategy of Russia has revealed the positive dynamics of the innovation activities of small enterprises, especially in some federal districts, which demonstrates the relevance of its adoption. The article points out that the lack of innovation is caused not only due to the global and national crises in the economy, but also the absence of the Russian small business interest in the development and production of innovative goods. The authors conclude that it is necessary to identify the priority areas of science and technology at the federal level and at the territorial level it should be considered the competitive potentials of socio-economic development of a certain area.

Keywords: innovations, small innovative business, technological innovations, socio-economic development

INTRODUCTION

The number of works dedicated to innovations is constantly growing and now the interest to this issue doesn't become weaker. There is no need to talk about the innovative development of the country, because only the government which applies the scientific achievements in its work is able to achieve high socio-economic development. It is important to point out that Russia has taken a course of improving the socio-economic development level and in March 2010 it was introduced a strategy of innovative development of the Russian Federation for the period up to 2020 «Innovative Russia 2020», drafted on the basis of the concept of long-term development of the Russian Federation for the period up to 2020. The strategy is aimed at transition of the Russian economy to a course of innovative development by 2020. Due to an active innovation policy of the federal center, many regions started to form regional innovation policies aimed at socio-economic development of the territory on the basis of innovative activity growth of enterprises, including small innovative ones.

It is a matter of great concern how small enterprises could influence on the innovative development of Russia at present in relation to the ongoing strategy? This gives rise to research

in the field of innovation activities of small enterprises, including different regions of the Russian Federation.

LITERATURE REVIEW

Review of the economic literature dedicated to the innovation issues has shown that there was a different interpretation of innovation and innovative process notions, which in turn complicates the development of innovation management theory. For further research it is necessary to identify these notions. There are two visions of innovations which can be currently found in the economic papers: the broader and the narrower. The first vision identifies innovations as the changes in order to implement and use of new consumer goods, new production and transport facilities, markets, and forms of organization in the industry (Schumpeter, 1934), as changes through the introduction of something new (Collins, 1966). The second vision is expected to take into account a scientific and technical aspect related to the creation and production of new goods, as well as the steps to implement technologically new products or processes (OECD, 1995).

There are two points of view in the literature, in one case an innovation is identified as a process of introduction of amendments, approaches, principles as an alternative to the current ones and in the second one it is represented as a result of the creative process in the form of new products (equipment), technology, method, etc. The representatives of the first view (Allen, 1966, the Harman, 1971) identify the innovation as the introduction of new or improved production processes, as well as the introduction and mass consumption of new products, processes or behaviors. Another group of scholars (Sokolov, Titov, Shabanov, 1997) describes the innovation not as a process of change, but as an outcome of creation and development (implementation) of a fundamentally new or modified approach (innovation) that satisfies specific social needs and giving the number of effects (economic, scientific, technical, social, environmental). Innovation can be identified as an outcome of innovative activity, which was embodied in the form of new or improved product, introduced on the market, a new or improved technological process used in practice. Much attention is paid to the development of high technologies in small companies (HTSFs), which reflects the urgency of research in this area, as well as the ability to use advanced technology for the prosperity of developed and developing economies (Oakey, Groen, Cook, Sijde, 2014).

Some scholars (Isom, Ceteris, Jarczyk, Ceteris, 2009) point out that small companies play the crucial role in technological change, because they have many advantages as sources of innovations. Other scholars (Safronov, Anischenko, 2012) identify small innovative enterprises as small enterprises which fulfill primarily activities aimed at the commercialization of existing knowledge, technologies and equipment. Small companies are successfully engaging in new market shares, have the ability to assess risk. The Intuit Future of Small Business Report (2009) has revealed that in the next decade small enterprises would embrace innovations broader and wider than they did that day. Entrepreneurial spirit will use new technologies and business processes that will increase productivity, improve the quality of products and services, expand the business and save time.

METHODS

In order to study the role of small enterprises in the innovative development of Russia a data analysis has been carried out. The analysis of the number of small enterprises engaged in technological innovations (see Table 1) shows that their number does not exceed an average of 5% in the Russian Federation. There is no big difference among business segments.

The highest rate of innovative enterprises belongs to the manufacturing sector in 2013, which includes the production of electric, electronic and optical equipment – up to 13.5%, chemical industry – up to 13.0% in 2013, coke and oil industry – up to 6.6%, the production of vehicles and transport equipment - up to 6.7%, the production of rubber and plastic goods – up to 6.4%. In the sphere of mining the ratio of small enterprises engaged in technical innovations is an average of 3%. There is a slightly higher point in fossil fuel extraction in 2009, the maximum was 6.3%. As of 2015 this indicator is also higher, almost 2.6 times, than in the mineral extraction, except fossil fuels. The ratio of innovative enterprises in the sphere of electricity, gas and water production and supply is 2.0% on average annually. Such rates are very small for Russia. For example, now the share of small investment business in the total industrial production of the Western European countries is as follows: Ireland – 75%, Germany – 66%, Finland – 49%, France – 46%, Italy – 40%, the UK – 39% (Golichenko, 2006).

Table 1
THE RATIO OF SMALL ENTERPRISES ENGAGED IN TECHNOLOGICAL INNOVATIONS IN THE RUSSIAN FEDERATION (%)

	2007	2009	2011	2013	2015
Total	**4,3**	**4,1**	**5,1**	**4,8**	**4,5**
Mining	3,5	3,1	3,4	3,1	2,8
including:					
Fossil fuel extraction	4,7	6,3	4,2	3,4	4,9
Mineral extraction, except fossil fuels	3,1	1,8	3,0	2,9	1,9
Manufacturing	4,5	4,3	5,4	5,1	4,8
including:					
Food production, including drinks and tobacco	4,5	4,5	4,8	4,4	4,5
Timber processing and wood products manufacture	3,0	2,0	3,4	2,5	3,0
Pulp and paper production; publishing and printing	3,1	4,0	5,4	3,6	3,7
Coke and oil industry	4,5	3,2	6,6	3,3	6,3
Chemical industry	9,9	11,3	13,0	10,7	10,0
Rubber and plastic goods production	6,0	5,0	6,4	4,9	5,7
Metallurgical production и finished metal products production	3,5	2,9	4,3	4,8	5,0
Production of electric, electronic and optical equipment	9,6	10,9	13,5	12,6	11,2
Production of vehicles and transport equipment	3,6	5,1	6,7	5,3	4,6
Electricity, gas and water production and supply	1,6	1,8	3,1	2,2	2,2

We have investigated the technological innovations costs of small enterprises in federal districts of the Russian Federation (Table 2). The table 2 shows that in general the innovations costs of small enterprises have increased by 2013. As of 2015 the Central Federal District occupies the leading position with the proportion of costs 28.52%. There is high cost ratio for the innovative technologies in the Siberian Federal District – 21.78% and in Volga Federal District – 19.68%. North Caucasian Federal District has the lowest ratio in this sphere – 0.13%, besides innovations have decreased in absolute and relative terms compared with 2009 by 8.5 and 15.8 times respectively.

Table 2
TECHNOLOGICAL INNOVATIONS COSTS OF SMALL ENTERPRISES IN FEDERAL DISTRICTS OF THE RUSSIAN FEDERATION

	2009		2011		2013		2015	
	mln. RUB.	%	mln. RUB.	%	mln. RUB.	%	mln. RUB.	%
Russian Federation	**6793,5**	**100**	**9479,3**	**100**	**13510,5**	**100**	**12151,8**	**100**
Central Federal District	1967,5	28,96	2734,5	28,85	3489,2	25,83	3466,0	28,52
Northwestern Federal District	668,4	9,84	845,6	8,92	1955,7	14,48	982,4	8,084
Southern Federal District	240,0	3,53	795,1	8,39	1184,8	8,77	957,0	7,88
North Caucasian Federal District	140,4	2,06	110,9	1,17	63,4	0,47	16,4	0,13
Volga Federal District	2104,8	30,98	2545,0	26,85	2967,1	21,96	2391,8	19,68
Ural Federal District	747,6	11,0	853,3	9,0	2126,0	15,74	1295,6	10,66
Siberian Federal District	575,8	8,48	1472,2	15,53	1356,2	10,04	2647,1	21,78
Far Eastern Federal District	349,1	5,14	122,6	1,29	368,2	2,73	283,0	2,33

Analysis of the innovative goods production in the districts reveals the return on investment (Table 3). As of 2015 the first place belongs to the Siberian Federal District, where the rate of innovative products is 4.17%. This district has been characterized by a high rate of innovative production since 2009. This territory is a strategic reserve and a power base of the development of Russia's economy, its innovative character mainly results from the resource orientation, as well as the development of scientific, technical, and educational potential. There are over 100 institutes and research centers in the Siberian Federal District.

Table 3
THE RATIO OF INNOVATIVE GOODS, WORKS, SERVICES IN THE TOTAL AMOUNT OF SHIPPEDGOODS, EXECUTED WORKS, SERVICES OF SMALL ENTERPRISES IN THE FEDERAL DISTRICTS OF THE RUSSIAN FEDERATION (%)

	2009	2011	2013	2015
Russian Federation	**1,38**	**1,48**	**2,07**	**1,64**
Central Federal District	**1,76**	**1,46**	**1,82**	**1,71**
Northwestern Federal District	**1,42**	**0,88**	**2,54**	**0,90**
Southern Federal District	**1,01**	**0,96**	**1,89**	**2,75**
North Caucasian Federal District	**0,65**	**0,74**	**0,85**	**0,08**
Volga Federal District	**1,50**	**1,78**	**2,41**	**1,56**
Ural Federal District	**0,67**	**1,74**	**1,95**	**0,96**
Siberian Federal District	**1,73**	**2,48**	**2,72**	**4,17**
Far Eastern Federal District	**0,14**	**0,15**	**0,53**	**0,20**

In 2015 the rate of innovative products in the Southern Federal District is high enough and equal to 2.75%. The industrial structure of the district is distinguished by development of the food industry due to favorable climatic conditions, as well as the light and chemical industries

are also well-developed. The Central Federal District has the rate of innovative products 1,71% in the total volume of 2015. There are large centers engaged in training highly qualified specialists in this district, as well as research institutes, cities of science, which promote the development of high-tech industries. Other federal districts also produce innovative products, but its rate is lower than 1%, which is characterized by imperfection of small innovative business in these regions.

RESULTS

The study of development of small innovation business in the Russian Federation has shown that Russia had made only the first step toward the innovative development. The number of small enterprises engaged in technological innovations is an average of 5%, which is quite low rate. The highest rate of small innovative enterprises belongs to the manufacturing sector in 2013 and in 2015 there was a slight decrease in the level of innovative small enterprises, due to global and national economic and financial problems. Technological innovation costs of small enterprises in federal districts of the Russian Federation have increased by 2013. Central Federal District, Siberian Federal District and Volga Federal District are the leaders by the investment amounts into innovations. The analysis of innovative goods production in the districts has revealed the return on investment. As of 2015 the first place belongs to the Siberian Federal District, moreover the innovative production indicators in this region are high throughout the entire survey period. With regard to the other federal districts there is a high rate of innovative goods produced by small enterprises in the Southern Federal District and Central Federal District. The production rate of innovative goods in these districts is higher essentially due to availability of highly skilled specialists and high-tech developments in various spheres.

DISCUSSION

The study of small innovative business in Russia has revealed that its development level is inadequate and significantly lower than in advanced countries, nevertheless there has been a positive trend of innovative activity of small enterprises since 2009. Inflationary processes in the economy and producers' focusing on current needs have a negative impact on the innovative development of small enterprises. In our opinion, the greatest challenge is a lack of interest of small business in the development and production of innovative goods, which is due to high risk of the innovative activity. In this case the crucial role belongs to the state which should encourage the development and implementation of innovative products at all control levels, in return, these products would facilitate developing the competitiveness of the territories in both domestic and foreign markets. At the federal level the issues of priority directions aimed at the development of science, technology, improving the competitiveness of production of the country should be discussed. Solving cross-cutting issues such as the implementation of major cross-cutting projects based on the creation of innovations that lead to radical changes in the technological base of the country is of prime importance. At the territorial level the innovative development issues should integrate the territorial priorities and the socio-economic development of a particular area on the basis of effective use of existing production, material, raw material and labor potentials.

CONCLUSION

Small business should play an important role in turning Russia into a competitive country which applies the scientific-technical achievements. It is a major factor ensuring the dynamic development of entrepreneurial activity, as well as a prerequisite for the innovative economy functioning. At the same time, the study has showed that small business was currently making an insignificant contribution to the innovative development of Russia. The main reason for this is the low activity of entrepreneurs in the innovation sector, which is explained by the higher risks of doing business. Therefore, the major challenge of the state is to create a mechanism which will promote the interest of entrepreneurs in the development of innovative products. The mechanism should take into account both the national priorities of scientific and technical research and the features of the development of the territories and their specifics. Thus, further study of this issue is of scientific interest and could be aimed at developing a mechanism for increasing the innovative activity of entrepreneurs.

REFERENCES

Allen J.A., 1966. Scientific Innovation and Industrial Prosperity. London, p. 31.

Isom C J., Jarczyk D., 2009. Innovation in Small Businesses: Drivers of Change and Value. SBA (Office of advocacy).

Collins National Dictionary, 1966. London and Glasgow, p. 262.

Golichenko O.G., 2006. National Innovation System of Russia: Condition and Development Prospects. Moscow.

Harman A.J., 1971. The International Computer Industry. Innovation and Comparative Advantage. Cambridge (Mass): Harvard University Press, p. 41.

Intuit Future of Small Business Report, 2009.

Organisation for Economic Cooperation and Development, 1995. The Measurement of Scientific and Technological Activities. European Commission Eurostat, p. 10.

Oakey R, Groen A, Cook G., Sijde P., 2014. The Netherlands New Technology-Based Firms in the New Millennium. Emerald Group Publishing Limited.

Schumpeter J., 1934. The Theory of Economic Development Cambridge. MA, Harvard University Press.

Safronov M.V., Anischenko Y. Small Innovative Enterprises: Formation of the Conceptual Framework. Topical Issues of Aviation and Cosmonautics. Socio-Economic Sciences and Humanities. 2012, no. 8, vol. 2, pp. 66-67.

Sokolov D.V., Titov A.B., Shabanova M.M., 1997. Prerequisites for Analysis and Formation of Innovative Policy. Saint-Petersburg, GUEF publ.

The Ratio of Small Enterprises Engaged in Technological Innovations in the Russian Federation. Available at: http://www.gks.ru/wps/wcm/connect/rosstat_main/rosstat/ru/statistics/science_and_innovations/science/# (accessed 19 February 2017).

Technological Innovations Costs of Small Enterprises in Federal Districts of the Russian Federation Available at: http://www.gks.ru/wps/wcm/connect/rosstat_main/rosstat/ru/statistics/science_and_innovations/science/# (accessed 19 February 2017).

The Ratio of Innovative Goods, Works, Services in the Total Amount of Shipped Goods, Executed Works, Services of Small Enterprises in the Federal Districts of the Russian Federation. Available at: http://www.gks.ru/wps/wcm/connect/rosstat_main/rosstat/ru/statistics/science_and_innovations/science/# (accessed 20 February 2017).

INSTITUTIONAL ASPECTS OF FORECASTING SOCIO-ECONOMIC SYSTEMS IN THE ORGANIZATION OF FOREST MANAGEMENT IN THE RUSSIAN FEDERATION

Saida O. Apsalyamova, Kuban State Technological University
Bella O. Khachir, Kuban State Technological University
Oleg Z. Khuazhev, Kuban State Technological University

ABSTRACT

The main trends of socio-economic development expressed in absolute measures indicate that the contribution of the forest sector in GDP of the forest regions of the Russian Federation decreased, while its proportion in the economy of the region has declined over 10 years from 1.2 to 0.8%. According to the preliminary studies, the labor power employed in the forest sector and future green jobs in the regions have also declined, in particular due to the increase in the performance efficiency. The recession that began in 2008 also led to increased unemployment and economic ills in forest-dependent communities and areas.

As for the regions of the temperate and boreal zones, according to the analysis, the value added indicators have not changed in the period of 2010-2015 (although exports increased by 10%), proportion of sector in total labor power (contribution to employment) declined by 0.2 percentage points (from 0.7 to 0.5%), while the percentage of forest sector in GDP decreased by 0.3 percentage points (from 1.1 to 0.8%).

Three developed regions (North-Western, Siberian, and Far East regions) are still major producers and consumers of forest products. At that, they account for 23% of total employment, half of value added in the global forestry sector, and 60% of forest products exports that is mainly due to a high level of value added in the wood processing sector in these regions.

However, the share of these three regions in the global value added indicators, employment, and trade in the last decade has steadily decreased due to various factors, including the recent economic downturn and financial crisis, increased competition in international markets and competition from other sectors.

Developing regions and Eastern Europe began to play an increasingly important role in global forest products manufacturing and trade. In the period of 2010-2015 their share in total employment in the global forestry sector has increased from 58 to 68%, while the proportion in global value added indicator in the sector has grown from 28 to 47%. This is mainly due to the development of the wood processing industry.

Keywords: biodiversity, ecosystem, forest policy, forest services, green economy, medical ecology, monitoring, payments for ecosystem services, protective functions of forests, recreation.

INTRODUCTION

Overall value added in the forestry sector did not grow at a rapid pace, with the exception of some regions, where the development of this sector was a particular priority of the national development policy [1, 12]. Just a few regions have paid attention to the development of this sector, since the preference was given to other industries. Thus, the forestry sector has almost always been assigned a secondary role, especially in regions with rapidly developing economy. In addition, this suggests that this sector is not one of the main drivers of economic growth and development, with the exception of cases characterized by the special circumstances [2, 9, 16].

As the efficiency of the sector increases, the number of employees in this sector decreases; more than this - it loses its significance in the economy.

These trends should be considered in the broader context of the current changes, including the transition of forestry, based on logging to the multi-purpose forest management, changes in the system of forests ownership, as well as mechanization and the implementation of information technology that is being observed for more than two decades. These trends are not the same everywhere; for example, the level of mechanization varies, because it depends on geography /topography, as well as political and legal aspects of the economy [3, 7, 13].

METHODOLOGY

Many studies are dealing with the effects of mechanization. However, just few of them discuss the implications of various technologies for forest management planning, which sometimes depends on geography and topography of the area. In many parts of the Russian Federation the forests in the mountainous areas and forest holding sizes mean that mechanization is possible only to a limited extent, and therefore, despite the growing popularity of mechanical processors, working methods, involving the use of hand motor tools, continue dominating.

Based on seven thematic studies for representational mountain ranges of the Russian Federation, it was concluded that in harsh terrain areas inappropriate technology is often used, and that selection of forest extraction methods is not based on accounting of the hillside slope angle. Nonmechanized and outdated logging systems are one of the reasons for the low operations efficiency and have the greatest impact on the environment, while fully mechanized systems are reported to be most effective, and their use guarantees the least number of accidents and the least damage to forest stands.

RESULTS

Effects of market factors have led to downsizing and restructuring of forest industry of the Russian Federation. The outcomes of the research, devoted to the impact of the forest sector on the economy, have shown that in 2015 almost all of the indicators in terms of value were lower than in 2001 (adjusted for inflation at the rate US dollar in 2015), as well as number of employees, value added, and value of production; besides, there have been shifts in the industry. All economic multipliers have increased that implies a scaling-up integration of forestry and production of forest products in the economy of the Russian Federation in the period of 2001-2015 [3, 11].

The sawmilling sector may be exposed to employment and unemployment cycles, the transition to more capitalized approaches and restructuring. The results of conducted studies show that workers with years of experience face problems such as long period of unemployment security, cyclical unemployment, and adverse physical and psychological labor conditions. Analysis of the manual workers' status in the six enterprises of the forest industry in the Northwest region, where restructuring had been taking place during the long-term period (2001-2015), showed that negative attitude towards changes increases the risk of being subjected to stress, and leads to lesser satisfaction with work.

In connection with the emergence of advanced concepts of integrated management of forest ecosystems and economic development of rural areas, the traditional theory of forest management today is undergoing significant changes. For example, the traditional models of permanent use of the forest are converted into sustainability concepts based on ecosystems, while emphasis is focused now not on economic growth in the forest products sector, but on the broader sustainable socio-economic development of the society. At that, the society realizes the fact that the resolution of its socio-political disagreements concerning forest management is an aspect of providing sustainability equally important as the consideration of the fact of the limited biological potential of forests [4, 10].

Therefore, today the state policy in the forest management:

1. Relies more on the ecosystems and is implemented at the landscape level;
2. Takes into account different social values or functions;
3. Is in the relationship with many socio-economic and political systems, ranged from local to regional and national, and even supranational level (for example, CIS);

In the case of forestry, presented indicators, certainly, do not allow judging about the total number of people working in the sector; at that, a huge amount of forest operations is carried out by state and private forest owners and members of their families, as well as members of local communities, none of which appears in the official employment statistics. Thus, the economy sector provides income and work for a much larger number of people than is evident from statistics.

The state of the local informal sector is one of the factors that indirectly influence the work-force size. Informal sector, where workers do not have basic social and legal rights, is prevalent in countries with emerging economies.

The improvement of labor conditions in the forestry sector in general occurs according to the classical scheme, resulting in an increase in wages, as well as reduction of working time and physical hard work, though this also entails rising unemployment, segmentation of labor market, its flexibilization, and environmental degradation. Full-cost accounting method, uneven-aged forest management, creating added value, giving communities the right of ownership, and ECO certification could become the basis for the adoption of alternative measures to improve labor conditions and performance efficiency [5, 14]. Sociological studies of the workforce show that formerly hereditary adherence to labor in the forest sector has been a tradition, while today many often go to work in the forestry sector from other economy sectors, or quit their jobs in the forestry sector and seek employment in other economy sectors. The main reason for this is a higher degree of flexibility of the labor power, dissatisfaction with labor conditions and life standards, as well as the loss of jobs due to mechanization.

In the Russian Federation, as elsewhere in the world, chain saws are currently used for harvesting of wood. The special mobile harvesting machines, which are operated by workers from the cab and which carry out tree felling, cleaning off branches, crosscutting, and stacking of round wood get rapid widespread. Logging mechanisms are widely used for lateral hauling of trees or logs, while transportation of short-length sticks to upper depots is carried out by forwarders. However, manual labor is still widely used in forest nurseries, as well as in the operations of planting, protecting, and pruning the trees. Therefore, the forestry workers perform both highly specific operations requiring special skills, and routine work [6].

Just some forest workers have jobs, regularly receive wages, and use social security, which is provided by forest owners or forestry companies. In order to save costs and achieve flexibility, many workers are fired from the staff and re-hired as contractors. This often leads to a deterioration of labor conditions, such as periods of excessive work to maintain expensive equipment, which are interspersed with periods of calm, when there is no work. For another thing, the extent of insurance against accidents, diseases, and disabilities is, as noted, insufficient.

In the past, especially in the Russian Federation, the trade unions played an important role in improving the status of forest workers. Today, due to reducing the number of employees, their role is weakened and at present very few forestry workers are the members of trade unions. The International Labor Organization (ILO) and the Building and Wood Workers International (BWI) federation were able to include social criteria in the forestry certification system. In particular, this was done thanks to the Declaration on Fundamental Principles and Rights at Work adopted by ILO. Due to this, the labor conditions of some workers, as declared by the Russian Federation, have improved [7, 12]

According to demographic indicators published in the "World Population Prospects" (edition of 2015), the Russian Federation is a region, where the working-age population (15-64) in the period of 2015-2030, as projected, will decrease in general (by 9.2%), while the population group aged 45-64 years will increase by 0.7%. Thus, on the one hand, the working-age population is reduced, while on the other hand, it is somewhat aging. The ageing of the labor power employed in the forest sector is a particular symptom of a more general trend of aging of the whole labor power; however, this research is focused on the more important aspect, namely the consequences of this aging. Possibly, workers of older age are subjected to greater risks in terms of health and safety, though, on the other hand, they are more experienced and qualified, especially given the increasing level of mechanization [8, 15].

Gender and ethnic diversities in the labor power are fragmentary. The number of regions that provide information about the gender composition of labor force employed in forestry increased from 10 (in 1990) to 30 (in 2015), at that, the number of regions that provide information about the gender composition of workers in the timber and paper industries has increased as well. The proportion of women employed in forestry increased slightly from 14% in 1990 to 15% in 2015, while in some regions they have a fairly large share in the labor power.

Women work mainly in forest nurseries and are engaged in planting and caring for trees, though some women perform typical men's work, such as the logging operations and fire suppression. However, women's wages are lower than men's salaries, even in the case of work requiring experience and skills, where women are reaching greater results than their male counterparts [9, 16]. However, the research outcomes indicate that the data received from the regions do not allow getting an idea about the types of work performed by women, as well as

concerning their opportunities for professional growth. In this study major attention is paid on the racial and gender aspects. At the same time, it is noted that the adoption of the legislation on relevant civil rights and litigation forced the Federal Forest Agency of Russia to start the diversification process, which resulted in the fact that the number of women in the Agency increased significantly, though this concerns mainly administrative jobs, rather than jobs that offer the opportunity for further advancement.

The structure of the organization affects the diversity of research workers. A recent study (2015) shows that the proportion of women among scientific workers of research institutes and forestry faculties of universities (multilayer organizations) is higher than that at the university faculty, though women do not occupy high positions at any institution. Demographic statistics suggests that the representation of women holding positions of senior scientific staff increases. It also seems likely that the inclusion of sociologists in interdisciplinary teams does not limit the opportunities for diversifying functions and gender composition. Given gender structure of traditional forestry, we can make the assumption that women are more likely to be engaged in less traditional activities than men. This issue was studied, and it was concluded that traditional forestry activity is the major task for both male and female owners of family agro-forestry; however, women work in the service sector more often than men.

A survey of men, who have the professional occupation associated with an increased risk, has shown that in many regions more than 90% of fatality at work are occurring with men. This is due to three reasons: men tend to be engaged in heavier physical labor associated with increased risk, they are less likely to pay attention to pain and health condition and rarely seek care in a social support network. By virtue of these qualities, men are more likely to take risks and will be easy in treating injuries and less likely to report difficulties or health problems [9, 11]. Research statistics does not contain information on the ethnic composition of the labor power. However, this issue has gained more attention similarly to the case of other professions that are in demand in rural areas. Forest management often hires migrants to work in forestry because they are attracted by higher wages. Some of them eventually settle in the host region, while others come only for seasonal works. They can largely contribute to the family budgets in their native countries. However, the money earned is not easy. Local workers receive much higher reward for comparable work.

Reduction in occupational health and safety to the current level of morbidity and injury requires the following measures to ensure improvement in hygiene and safety of workers in the forestry sector:

1. Raising the level of political will to improve occupational health, safety and security protection through the analysis of current situation with the labor power;
2. Drastically improving control over the occupational health, safety, and security protection of forestry workers;
3. Promoting the application of the Forest Code of the Russian Federation in forestry contractors practice, and carrying out the relevant monitoring;
4. Ensuring compliance with relevant legislation and developing, if necessary, regulations to account for changes in technology and working conditions;
5. Funding outreach efforts to ensure employers and workers to be adequately aware of the safety standards and occupational health;
6. Conducting proper campaigns aimed at forming a culture of preventive security and occupational health.

Data collected for a nationwide indicator of sustainable forest management "Safety and Security Protection" suggest that "work in forestry still remains a very dangerous and fraught with accidents," though occupational health, safety, and security protection is one of the main policy priorities in many regions of the Russian Federation, although the improvements in this area are very little or not at all.

In regions, where a high level of forest harvesting mechanization was achieved over the last decades, the number of accidents is much less than in regions, where chain saws are still widely used. Given the large number of accidents in the regional forestry sector, it is necessary to undertake continuous efforts at all levels to improve the situation in occupational health, safety and security protection of those, who earn a living by working in forestry [4, 11].

It is important to note that there is a serious problem with regard to this indicator, which is "the lack of data comparability", i.e. there is no consensus at the global level on how to report the data on the losses in time, caused by accidents and injuries. At that attitudes concerning the transparency issue significantly differ as well.

Many publications note that the working in forestry still remains one of the most dangerous or significantly more dangerous than working in other industries. One of the problems is that according to the prevailing opinion, the security issue can be solved through the mechanization of operations through employment of technologies, proven in terms of both ensuring labor safety and cost-effectiveness that however has negative consequences for employment and local economy.

Statistical data on fatal accidents are generally the most accurate among all the statistical data on accidents, because they are presented not by the injured persons, but published in the official reports. The number of fatal accidents is an important indicator showing the activity effectiveness in the field of risk prevention, and demonstrating the effectiveness and consistency of measures taken by individual countries in order to ensure occupational safety.

In the Siberian Federal District, where number of fatal accidents is fairly high, detailed analysis of the information contained in the accident reports showed that the presented data are not sufficiently detailed to develop preventive measures. Only through further study of the injuries and analysis of accidents, as well as the implementation of new equipment, it became possible to manage the development of preventive measures that determine the order of actions in case of accidents and provide for the eradication of their causes.

A study conducted in the Far Eastern Federal District showed that measures to ensure the safety of workers in agriculture, forestry, and fisheries are limited in scope. Besides, standards and safety rules are generally less stringent than in other industries, while actions taken for their implementation, sadly, are unsuitable.

The vulnerability of agriculture, forestry and fishery workers is enhanced when they have immigration status. Agricultural workers especially suffer from the fact that they have long been “excluded” in accordance with the law, since many provisions regarding protection simply do not apply to this category of the labor power.

Official statistics indicate that between 1990 and 2015 the number of people employed in all sectors of the forest industry of the Russian Federation has considerably decreased: in forestry, a reduction amounted to 845 thousand people (63%), in the woodworking sector – 457 thousand people (39%), while in the pulp and paper industry – 135 thousand people (32%). The total number of people employed in the forest sector of the Russian Federation between 1990 and 2015 was reduced by more than 1.4 million people (49%).

The number of employees in the furniture industry also decreased significantly. Thus between 1990 and 2015 the reduction amounted to 416 thousand people (45%). However, it is interesting to note that the number of people employed in this industry in North-West and Central Federal districts has increased by 63 thousand people (82%).

After political reforms of 1990-1992 in the Russian Federation, the largest capacities of the wood industry, as well as the production of wood panels and furniture were transferred from the Western and Central parts to the East, while major research centers and higher educational institutions of the Russian Federation in these decades have been reintegrated and reformed to ensure their survival in the context of the occurring economic and political changes [1, 12].

The forest management education in the Russian Federation faces the following challenges: reducing the number of students, possible discrepancy of the training format with cotemporary requirements, the lack of funding, tough competition from other specialized institutions of higher education, the irrelevance of the acquired skills due to demands put forward in connection with the need to ensure sustainable development, acquiring knowledge by young people that do not meet the expectations of the business community, the low attractiveness of forest management education and the incompatibility of current curricula in forestry education with the phenomenon such as globalization.

The key change that occurred in the forest sector of the regions, for example, in North-Western, Volga and Central Federal districts, having the most developed forestry infrastructure, consisted in reduction of the number of workers employed during the transition period. In 1990, 311.9 thousand people worked in this sector, of which 192.9 people or 61.8% were employed in the woodworking and furniture industries.

During the transition period the number of employed rapidly decreased every year that was due to two main reasons:

1. Reform of state forest enterprises that significantly reduced the number of employees engaged in logging activities;
2. Bankruptcy of many state companies in woodworking as well as pulp and paper industries.

DISCUSSION

As a consequence, total employment in the forest sector in 2015 amounted to about 141 thousand, i.e. just 45% of that in 1990. The most significant change in terms of employment occurred in the woodwork and timber industry (including furniture industry), where numerous small companies with the number of employees equal to 5-50 people, which went completely bankrupt during the transition period, were replaced by large companies.

The number of employees also decreased significantly in the cellulose and paper industry. In some regions, for example, in the Siberian Federal District, cellulose production was completely stopped, while in other regions (in the Southern and Far Eastern Federal districts) it was reduced to a minimum, and currently the industry is on the verge of starvation.

In the forest sectors of these regions, i.e. within the same geographical boundaries and at almost the same potential, the number of employees exceeded almost by 170 thousand people as compared to 2015. This suggests the fact that in this sector there are opportunities to create enough jobs in the next 10 years, provided the availability of conditions for more efficient use of these workers. To this end, some regions have already taken steps towards expanding the use of their own labor power through the implementation of action plans in the field of forest industry to create new jobs.

The forest sector, mainly forest husbandry and timber industry, plays a quite important role in providing employment in rural areas. A study conducted in North-Western, Volga, and Central Federal districts in the framework of the project "Production of wood-based energy for sustainable rural development", shows that about 4 thousand people in these regions are involved in the production of wood fuel. Among them more than 70% are engaged in harvesting wood fuel and burning out charcoal. Adding this figure to the number of support staff, it turns out that approximately 6.7 thousand people are involved in the wood fuel production. Employment in woodwork and timber industry is the only source of income for the rural population.

The level of self-employment in the timber industry is one of the most essential, especially in sectors such as wood procurement, and the collection and processing of non-timber forest products. A study conducted in the North-West, Volga, Central and Southern Federal districts shows that the number of self-employed people just in one forestry sector amounts to 12.3 thousand, who are engaged in harvesting of wood fuel in private forests of rural areas. The number of these workers is not officially reported due to the deficiencies existing in the official statistics system.

Changes that affect employees, occupied in the regional forestry sectors, are caused by several factors among which the most important are:

1. Structural changes in the forest sector;
2. Development of new technologies and implementation of technical innovations;
3. Demands to continuously improve the performance efficiency;
4. Market trends, especially the demand of foreign buyers for high quality wood products;
5. Rural development and environmental protection policy.

CONCLUSION

In recent years, a new development concept was adopted in the framework of structural changes in the regional forestry sector. This concept is based on the action plan for the forest sector in the conditions of "green" economy development. The incorporation of this new concept into the strategy for forestry development and its improvement are currently continuing. In this regard, the labor force is facing new requirements.

Until recently, in the framework of the organization of forestry, the major attention was focused on the labor power required to meet the needs of harvesting operations. This approach is still predominant, since state forestry enterprises and even the national parks services in their activity largely depend on the wood harvesting and sales.

However, a new development concept of the forest sector advances new demands to the labor power. This is necessary to use other functions of forests in addition to timber production, and certainly will affect the labor training system in the near future. Though, there are essential differences between individual subregions that must be overcome to create and advance opportunities to remove barriers in the forest product market development from the viewpoint of public and private sector.

ACKNOWLEDGMENTS

The study was performed at financial support of the Russian Humanitarian Fund within the research project No. 15-02-00199 "Formation of the socio-economic development concept of the forest sector in the Russian Federation".

REFERENCES

Khashir, B.O., 2015. Organizational and economic mechanisms for monitoring of processes ensuring sustainable development of the forest sector. BBRA, Biosciences, Biotechnology Research Asia (India, ISSN 0973-1245, Scopus), 12(2), pp. 1345-1349.

Khashir, B.O., 2015. Economic mechanisms of competitiveness in nature arrangement, environment protection and ensuring medico-ecological safety. BBRA, Biosciences, Biotechnology Research Asia (India, ISSN 0973-1245, Scopus), 12(2), pp.1451-1458.

Khashir, B.O., 2015. The economic value of forest ecosystem services. Journal of Environmental Management and Tourism. University of Craiova, Romania, 4(11), ASERS Publishing, pp. 291-297.

Khashir, B.O., 2015. Legal aspects of ecosystem services related to efficient forest exploitation. Journal of Environmental Management and Tourism. University of Craiova, Romania, 4(11), ASERS Publishing, pp. 53-61.

Khashir, B.O., 2015. Green economy ecosystems in the forest sector services. BBRA, Biosciences, Biotechnology Research Asia (India, ISSN 0973-1245, Scopus), 12(Spl. Edn. 2), pp. 643-649.

6FAO. Forecast for the forest sector development in the Russian Federation until 2030. Rome, 2012. Retrieved from www.fao.org

FAO. Global forest resources assessment. Rome, 2010, Retrieved from www.fao.org

FAO. Terms and definitions. Forest resources assessment working paper 180. Rome, FRA,2015. Retrieved from www.fao.org

FAO. State of world's forests, 2014. Rome. Retrieved from www.fao.org.

FAO. Country reports. Rome. Retrieved from www.fao.org

Fernholz, K., and Kraxner, F. Certified forest products markets. UNECE/FAO Forest Products Annual Market Review. The United Nations Economic Commission for Europe (UNECE), Genève. Retrieved from www.unece.org

International standard industrial classification of all economic activities, 2008. Statistical Papers, series M, No. 4, Ed. 4. New York, UN, 2014. Retrieved from www. unstats.un.org

Bhane, Y. K., Zyza V. P., and Styagun A.V., 2016. Formirovanie koncepcii socialno-ehkonomicheskogo razvitiya lesnogo sektora [Formation of the socio-economic development concept of the forest sector] [Text]. Economy and Entrepreneurship", 1(2) (66-2), pp. 45-49.

Bhane, Y. K., Zyza V. P., and Styagun A.V., 2016. Aspekty ehkonomiki ehkosistem v sfere uslug lesopol'zovaniya [Economics of ecosystems services in forest management] [Text]. Economy and Entrepreneurship, 1(2), (66-2), pp. 49-51.

Bhane, Y. K., Zyza V. P., and Styagun A.V., 2016. Razvitie sfery prirodopol'zovaniya i obespecheniya mediko-ehkologicheskoj bezopasnosti. [Developing environmental management and ensuring health and environmental safety] [Text]. Economy and Entrepreneurship, 1(2), (66-2), pp. 85-89.

Bhane, Y. K., Zyza V. P., and Styagun A.V., 2016. Ocenka vliyaniya investicionnyh processov na prirodnye sistemy [Impact assessment of the investment processes on natural systems] [Text]. Economy and Entrepreneurship, 1(2), (66-2), pp. 53-59.

PRIORITY AREAS OF DEVELOPMENT OF THE LABOR POTENTIAL OF RURAL TERRITORIES IN RUSSIA

Farida Islamudinovna Mirzabalaeva, Plekhanov Russian University of Economics
Olga Viktorovna Zabelina, Plekhanov Russian University of Economics
Igor Alexeevich Shichkin, Plekhanov Russian University of Economics
Vera Sergeevna Konkina, Ryazan State Agrotechnological University
Patimat Ruslanovna Alieva, Dagestan State University

ABSTRACT

Labor potential becomes one of the key factors of economic growth in the current conditions in Russia. Russian rural territories experience a systemic crisis, which results in deteriorating demographic situation, rising poverty and unemployment, migration outflow of youth, deteriorating social infrastructure, etc. Having predicted the development of the core indicators of agricultural development, the authors came to a conclusion that there is a significant potential for further development of labor potential. The authors justified the priority areas of development of the labor potential of the population in this article (maintaining and strengthening the health of the rural population, ensuring an adequate standard of living for the rural population, stimulating entrepreneurial activity and self-employment, raising the educational and professional level of the rural population, motivating inter territorial mobility), the implementation of which will allow to give a new impetus to the development of the agrarian field and to increase employment in the economy of agriculture.

Keywords: development of the labor potential, population of agricultural territories, rural employment, agrarian unemployment, migration.

INTRODUCTION

The prevailing part of the territory of Russia is rural areas, which are home to almost a third of the country's citizens. These areas, with their solid natural, demographic, economic, historical and cultural potential, are able to make a greater contribution to addressing the problems of economic growth and social development of the country. However, steady stagnation of rural areas has been seen over recent years. The authors have set the task in this article to define the factors determining the development of the agrarian labor potential, provide a forecast of the core indicators of rural employment and justify the key areas of development of the labor potential.

According to the authors, building the labor potential of the population of rural areas is determined by the following factors in the current conditions: economic (capital-labor ratio of agricultural enterprises, investment potential of rural areas, financial resource capacity and availability for the development of small and medium businesses, the number and efficiency of development of households and self-employment in agricultural areas, etc.); social (provision of amenity infrastructure, state of the labor market, payroll rate, economic activity of the rural population, working conditions, etc.); demographic (migration, life expectancy, death rates,

structure of vocational education and training, etc.); natural and climatic (climatic pattern, geographical feature, degree of the territory development, quality of land resources, availability of natural resources, fertility of soils, etc.); cultural (prestige of agrarian specialties, mobility, housing conditions, availability of cultural facilities, organization of youth leisure, etc.), and others. Of course, it is difficult to analyze the influence of all factors in this article, therefore only few of them will be explored.

According to the authors, the following key factors have a positive impact on the development of the labor potential of the population of rural areas: possibility to increase the labor potential at the expense of the labor resources of rural areas and redistribution from excess working regions; great opportunities for development of the environmentally friendly agricultural production; high natural and resource potential; availability of considerable unused labor resources; relatively low cost of labor; high investment appeal of rural areas, etc. According to the authors, the following factors can be named as hampering the development of the labor potential of rural areas: unfavorable demographic situation; high rate of unemployment among rural population; outflow of rural population to cities; low payroll rate and income of the rural population; state of health of the rural population; insufficient level of rural infrastructure development; low level of housing improvement; stagnation of production and jobs in the basic branches of the rural economy; unfavorable, unattractive working conditions, etc. [Mirzabalaeva F.I., Alieva P.R., 2016]. According to the authors, the definition of the main areas of development of the labor potential of agricultural areas, taking into account the factors listed above, is very important.

METHODS

In the process of research, the authors used statistical methods, methods of sociological research, and methods of economic and mathematical modeling. The socio-economic systems are subject to severe volatility, and a change in the structure of indicators is observed in the conditions of globalization of the economy and state regulation. Due to this, relevant and flexible statistical tools should be used to forecast changes in complex socio-economic systems, which the labor market belongs to. In our view, additive methods should be used to forecast the labor potential of rural areas. The ARIMA method is a variation of the additive forecasting methods. It is used in the forecasting practice in cases where time series have a complex structure and therefore their simulation using traditional approaches does not produce an adequate result. The conducted analysis of the forecasting methods has shown that the autoregressive integrated moving average model (ARIMA, the Box-Jenkins model) should be chosen to build a forecast for the development of labor potential in the rural areas. Size of population engaged in agricultural production in the period of time t (Yt), taking into consideration the range of r exogenous factors xkt, looks as follows:

$$\Delta^d Y_t = c + \sum_{i=1}^{p} a_i \, \Delta^d Y_{t-1} + \sum_{j=1}^{q} b_j \, \varepsilon_{t-j} + \varepsilon_t + \sum_{k=1}^{r} g_k \, x_{kt} \quad (1)$$

where ε_t is a stationary time series (autocovariance process);
c, ai, bj, gk are parameters of the model;
Δ^d is an operator of the difference of time order d.

Data for the period from 2000 to 2014 are used to forecast the size of population employed in rural areas for 2025 (Table 1) (Yt).

Table 1
SIZE OF POPULATION EMPLOYED IN RURAL AREAS IN THE RUSSIAN FEDERATION, THOUS. PEOPLE.

Years	Size of population engaged in agricultural production, thous. people.
2000	8,366.8
2001	7,929.1
2002	7,640.2
2003	7,217.1
2004	7,300
2005	7,489
2006	7,254
2007	7,045
2008	6,774
2009	6,683
2010	6,622
2011	6,565
2012	6,467
2013	6,364
2014	6,247

Source: Compiled based on the data from the Federal State Statistics Service http://www.gks.ru/wps/wcm/connect/rosstat_main/rosstat/ru/statistics/wages/labour_force/#

The time series under study sees a distinct trend: average values of the size of the rural population are gradually decreasing. As a result, it can be concluded that the time series is rheonomous. Standard procedures are required to bring it to a state suitable for forecasting: periodic data evaluation, taking logarithms, etc. A logarithmic transformation is applied to reduce the variance of the analyzed series. A monotonic decreasing trend was revealed in result of this transformation. The trend is removed from the data using the first-order difference operator.

Autoregressive and autocorrelation components are used to take into account the impact of the key factors on the size of population employed in rural areas. The following exogenous variables of the model are singled out: state of the amenity infrastructure in rural areas; state of industrial infrastructure in rural areas; size of the average monthly wage in agriculture; federal and regional programs of state support for agricultural producers; state programs to support young professionals working in the countryside.

Empirical research methods were used to evaluate the exogenous factors that have impact on the state of the labor potential of rural areas. During the survey, 60 experts (20 teachers of agricultural universities and 40 top managers and senior specialists in rural areas of the Ryazan region) were polled. Assessments of the state of selected factors on a scale from one to ten were obtained as a result of the questionnaire of the expert group within the framework of the study (Table 2).

Table 2
RESULTS OF QUESTIONING OF EXPERTS ON THE STATE OF EXOGENOUS FACTORS

Years	state of the amenity infrastructure in rural areas	state of industrial infrastructure in rural areas	size of the average monthly wage in agriculture	federal and regional programs of state support for agricultural producers	state programs to support young professionals working in the countryside
2000	3.7	4.0	3.0	4.0	3.0
2001	3.6	4.1	3.0	4.0	3.0
2002	3.6	4.2	3.0	4.2	3.0
2003	3.6	4.2	3.0	4.3	3.0
2004	3.6	4.4	3.0	4.4	3.0
2005	3.5	4.4	3.0	4.4	3.0
2006	3.5	4.4	3.0	4.5	3.2
2007	3.6	4.5	3.2	4.6	3.3
2008	3.5	4.8	3.3	4.8	3.4
2009	3.4	5.0	3.4	5.0	3.5
2010	3.3	5.0	3.4	5.1	4.0
2011	3.3	5.3	3.5	5.2	4.5
2012	3.3	5.4	3.6	5.5	5.0
2013	3.5	5.6	3.7	5.8	5.0
2014	3.5	5.8	3.8	6.0	5.0

Source: Compiled by the authors based on the results of the study

The actual data obtained in result of the questioning of experts were normalized. An integral evaluation of the factors influencing the development of the labor potential of rural areas (X_{hkt}) was given using averaging, standardization to the level of the initial value of the time series, as well as the convolution of expert evaluations of n factors.

$$X_{kt} = \sqrt[\frac{n}{2}]{\prod_{h=1}^{n} X_{hkt}} = 1{,}239 \quad (2)$$

where X_{hkt} is a standardized evaluation of factor h at the time t.

As such, a process of improvement of the state of labor potential in rural areas emerged, determined by the growth of the investment attractiveness of the agricultural sector, and further by the adoption and implementation of state programs for the development of the agrarian sector. However, despite positive trends, the integral indicator of the group of qualitative factors of the labor potential of rural areas still remains quite low (1.239), which is caused by multiple problems in the agribusiness of the country.

As such, structural changes in the demand and supply of workforce take place in the rural labor market, which must be taken into account when drafting forecast scenarios for the development of the sector.

The first scenario can be attributed to the category of extensive. This is determined by the fact that it is supposed to maintain the existing trends in the development of labor potential in rural areas. The development of rural areas under the extensive scenario does not merely mean an increase in the size of labor resources in the sector, but also the presence of a progressive component, the share of which corresponds to the actual rates of development of the agricultural sector, taking into consideration the further implementation of the objectives for the priority national project "Development of agribusiness" [Federal target program "Sustainable

development of rural areas for 2014-2017 and for the period through to 2020. 2013]. This scenario assumes the growth of the scale of agricultural production with a simultaneous systematic increase in labor productivity (about 4% per year) and an increase in high-performance jobs by 171,000.

The second scenario can be attributed to the category of intensive. It suggests the qualitative economic growth and describes the accelerated variant of development of the labor potential of rural areas. The intensive scenario will be based on the active state support, realization of major investment projects, and attraction of domestic and foreign investors. Improvement of the quality of human capital assets and use of high-tech industries on this basis are fundamentally important. The conducted calculations allowed to build a forecast of the size of population engaged in agricultural production in 2025 for each of the forecasts. Under the intensive scenario of development of the labor market, the size of population engaged in agricultural production will amount to 7,740 thous. People, while under the extensive scenario it will amount to 6,414 thous. People.

The next stage in the formation of scenarios for the development of labor potential in rural areas is the calculation of the key technical and economic indicators for each scenario (Table 3).

Table 3
CONDITIONS OF THE DEVELOPED SCENARIOS FOR THE DEVELOPMENT OF THE DAIRY BREEDING

Indicators	Actual (2015)	Scenarios for development (2025)	
		extensive	intensive
Size of population living in rural areas, thous. people	37,887	37,060	37,060
Size of population engaged in agricultural production, thous. people	6,293	6,414	7,740
Average monthly wage in agriculture, rub.	19,721.1	29,192.05	66,854.53
Labor productivity, thous. rub.	281.0	415.95	2,395.63
Unemployment rate in the rural area, %	8.6	8.3	7.8

Source: Compiled by the authors based on the results of the research

Actual rural population figures were taken for calculation of the performance indicators. Implementation of the developed forecasts will allow to reduce the unemployment rate to 8.5 and 8.3%, respectively. As such, the conducted research revealed that the implementation of the development of relevant measures would lead to positive results in the labor market. They will allow to increase the level of employment and income of the rural population significantly, to reduce the spread of poverty, etc. The developed forecast of development of the labor potential can be used by state authorities in formulation of the strategy for rural development, while methodological approaches and indicators can be applied to found the projects for the programs to ensure sustainable development of the rural market of labor.

RESULTS OF THE RESEARCH

Let’s consider the actual situation in the rural market of labor and the impact of some of the factors on the processes of shaping the labor potential of agrarian territories. Rural unemployment is one of the most serious problems, which is one of the risks that contribute to the growth of poverty and hinder the sustainable development of the labor potential of rural

areas. The level of employment of rural population in economically active age has increased from 57.8 in 2010 to 60.7% in 2015, while the level of general unemployment over this period has decreased from 10.6 to 7.9% (Table 4).

Table 4
INDICATORS DESCRIBING THE SITUATION IN THE RURAL MARKET OF LABOR

	Total, thous. people	of which		Labor force participation rate,%	Employment rate, %	Unemployment rate, %
		employed	unemployed			
2005	17,789	15,952	1,836	62.7	56.2	10.3
2006	18,249	16,223	2,026	63.1	56.1	11.1
2007	18,380	16,523	1,857	63.8	57.4	10.1
2008	18,329	16,595	1,734	64.0	57.9	9.5
2009	18,479	16,423	2,056	64.9	57.6	11.1
2010	18,308	16,362	1,947	64.7	57.8	10.6
2011	18,345	16,592	1,753	65.7	59.4	9.6
2012	18,100	16,561	1,540	65.8	60.2	8.5
2013	18,081	16,579	1,502	65.7	60.2	8.3
2014	17,893	16,484	1,408	65.7	60.6	7.9
2015	18,133	16,694	1,438	65.9	60.7	7.9

Source: compiled by the authors on the basis of Rosstat data [Workforce, employment and unemployment in Russia (based on the results of sample labor force surveys). 2016. – p. 16.]

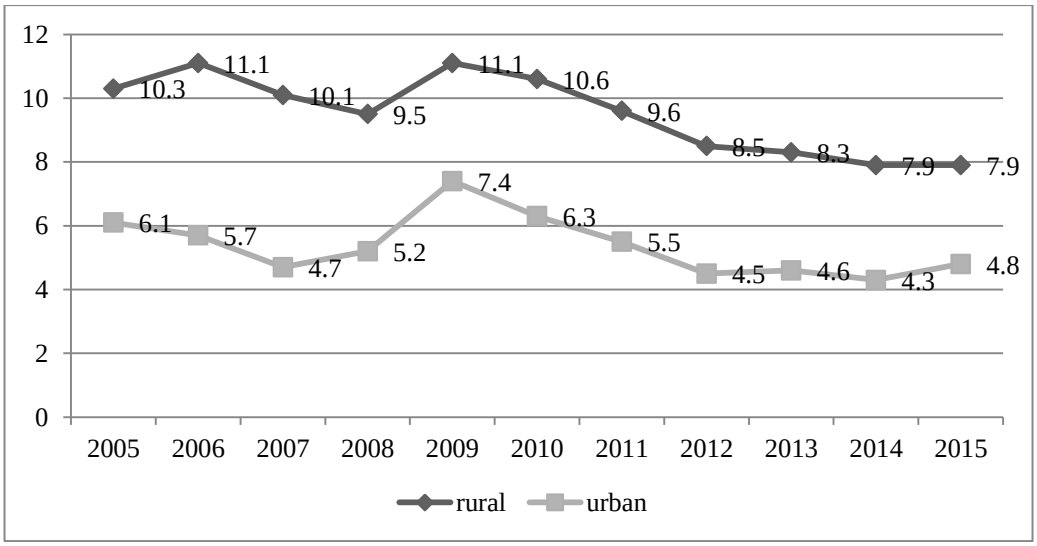
At the same time, the situation in the social labor field of rural areas remains complicated. There were 1,540 thous. unemployed in rural areas in 2015, including 1,411 at employable age [Survey of population on employment issues, 2015]. The level of general unemployment in rural areas is almost twice as high as in urban areas (Figure 1).

Men dominated in the distribution of unemployed people by sex in 2015: their share amounted to 55.7% of total unemployed. In the age structure of this category of unemployed, the most numerous were the groups of the population 20 to 49 years old inclusive, i.e. young people and the average employable age, while the least numerous were the groups 15 to 19 and 50 to 72 years old, i.e. young people and those in the senior employable age. In the composition of the unemployed by marital status, 49% were married and, accordingly, 51% were single. The largest mass educational group among the unemployed was represented by persons with secondary general (35.6) and secondary vocational (37.4) education, while the smallest groups were people with higher professional education (11.6). At the same time, only 35% were registered, while the remaining unemployed were socially unprotected in the market of labor: they did not receive unemployment benefits, assistance in employment, vocational guidance, training and retraining. Excess of the scale of general unemployment over the scale of registered unemployment in 2015 was almost 3 times. Across the subjects of the Russian Federation, the ratio of total and registered unemployment in rural areas varies from 1.2 times in the Chukotka Autonomous District to 9.3 in the Republic of Mari El.

The actual figures of rural unemployed people outside the state-regulated market of labor are much higher than recorded in official statistics. The matter is that when the unemployed are accounted according to the ILO methodology, not all citizens who do not have a profitable occupation and express a desire to work are assigned this status. The unemployed do not include the population looking for job but not ready to start it at the time of the survey on employment

issues, as well as those who are not looking for job, including those who gave up finding job [Bondarenko L., Tatarova L., 2014.]. A large gap between the number of unemployed counted according to the ILO methodology and the number of those registered is explained by the fact that the prestige of the state employment services as an authority capable of solving the problems of the unemployed is very low and application there for help in employment is low.

Figure 1
GENERAL UNEMPLOYMENT RATE IN URBAN AND RURAL AREAS, % (COMPILED BY THE AUTHORS USING THE ROSSTAT DATA. [WORKFORCE, EMPLOYMENT AND UNEMPLOYMENT IN RUSSIA, 2016, P.15-16.]



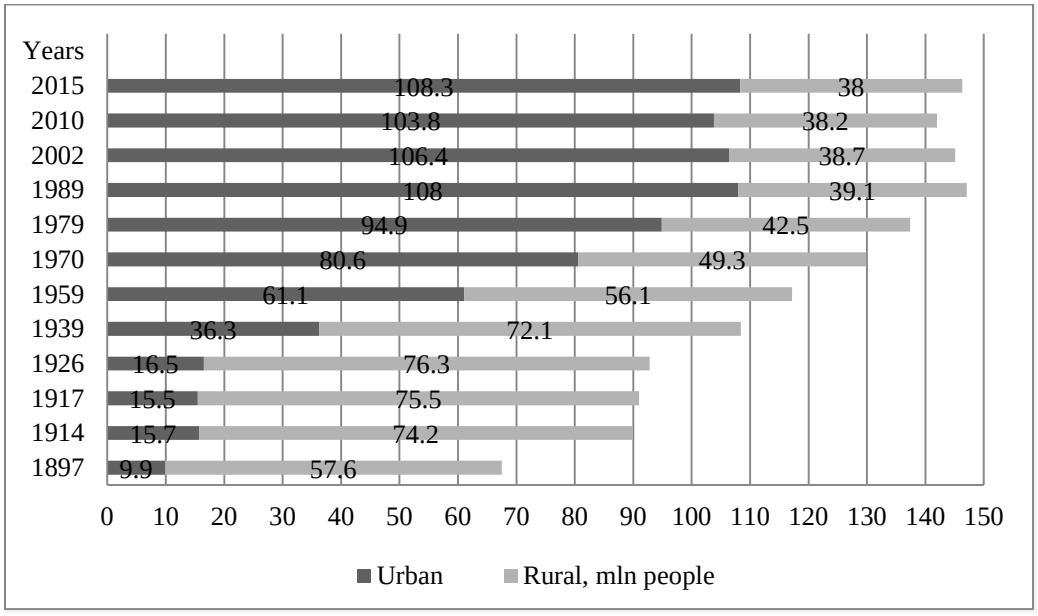
The unemployment benefit does not provide the minimum required rate of replacement of lost earnings, the jobs offered do not meet the requirements of those in need of employment, as they are mostly jobs with wages below the subsistence line or with hard working conditions, etc. In rural areas, the situation is aggravated by the territorial remoteness of employment centers, lack of any jobs at the place of residence, and poor awareness of the population about the kinds of assistance that employment services can provide.

Long-term unemployment is characteristic for the majority of rural residents; 33.7% of them had no job for more than one year in 2015. It must be noted that 26.8% of unemployed were in a situation of hard-core unemployment in rural areas in 2010. Long-term unemployment is one of the most acute social problems of the modern market of labor in rural areas. It leads to de-qualification of the workforce and the accelerated depreciation of human capital assets, increased poverty and economic inequality, as well as weaker motivation to seek for a job. Besides, hard-core unemployment does not fulfill the functions of anti-inflationary restraint and reconciliation of supply and demand in the labor market. Unemployment also affects the mental and physical health of the rural population. According to opinion polls, 40 to 75% of various categories of unemployed people experience feelings of frustration, loneliness, resentment, uselessness, anxiety, uncertainty and despair. They get insomnia, depression, irritability, decreased vitality and nerve strain. In these conditions, along with supporting the income of unemployed people, it is necessary to more actively implement measures aimed at improving their physical and mental well-being and eliminating social isolation [Rodionova L.V., 2012].

Poverty is the most severe social consequence of unemployment. Rural poverty is described by a massive nature and particular depth. Its rate exceeds 80% in some settlements, and the poor population is not able to solve the basic tasks of development of the agrarian economy and the social field of the village, let alone economic development. Their employment in decent jobs is the most efficient way to overcome poverty and the most important prerequisite for the transition of rural areas to sustainable development.

Migration is another important factor affecting the formation of labor potential. The share of urban residents amounted to 1/3 by the end of the 1930s, to 1/2 in 1957, and to nearly 3/4 of the population of Russia in 1991, reaching the highest number of over 108 mln people by 2016 (Figure 2) [Demographic yearbook of Russia, 2015, p. 15].

Figure 2
SIZE OF URBAN AND RURAL POPULATION IN RUSSIA, ACCORDING TO CENSUS AND THE CURRENT ACCOUNTING



According to the National Census 2010, more than 37 million people or 26% of the country's population live in 154 thousand rural settlements. At the same time, 40% of these rural areas are classified as underpopulated – no more than 10 people living within one settlement. Intra-Russian migration mobility contributed to a predominant concentration of population and labor resources in the central, north-western and southern regions, and to the formation of a personnel deficit in the northern and eastern regions of the country at the same time. Unbalanced flows of workforce in Russia, which lead to an uneven distribution of labor resources across the country, particularly to their surplus in some regions and shortages in others, have the most negative impact on the agribusiness of the country. This often causes a high level of unemployment, the most characteristic for the labor-surplus regions of Russia in the first place, which is one of the reasons for the outflow of the rural population [Shichkin I.A., 2015].

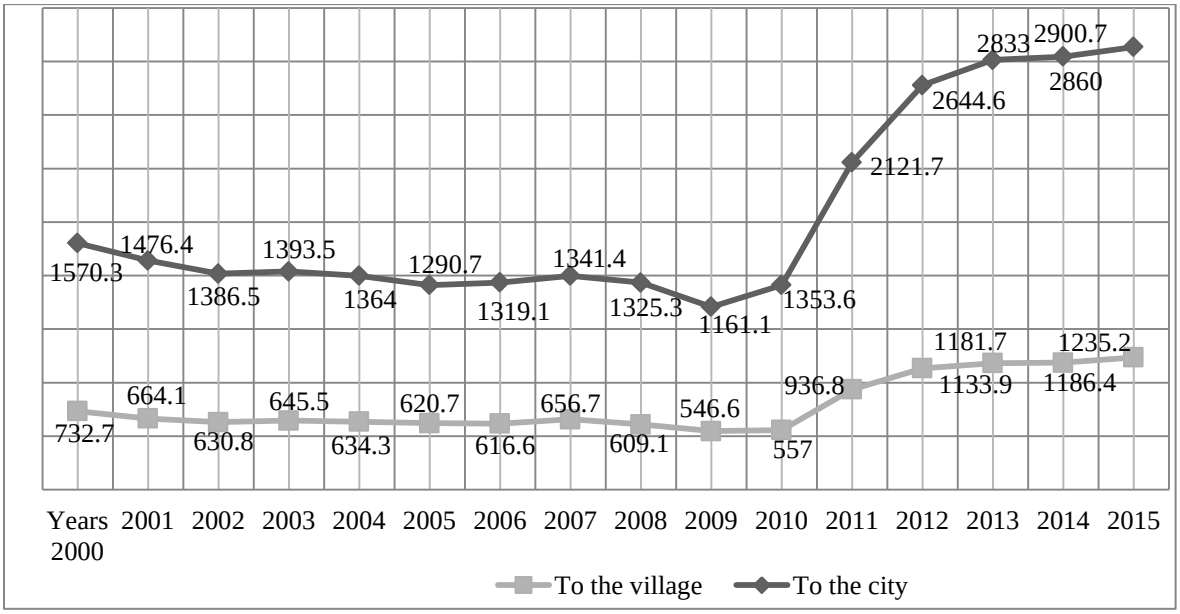
In general, the scale of internal migration in Russia during 1989-2010 was described by negative dynamics, which led to a reduction in the number of internal migrations more than twice. Since 2011, as a result of changes in the procedure for statistical accounting, in particular the inclusion

of persons registered in the place of stay for a period of 9 months or more in the permanent migrants, the statistics has included people who have lived for a long time outside the place of permanent residence and temporarily registered there for a specified period for example, students. Therefore, according to Rosstat data, the scale of internal migration in the period of 2011-2015 increased significantly, nearly reaching the 1990 level. However, if the former instruments of statistical accounting are operated, the actual volumes of internal displacements remain in the range of 2-2.5 mln people [Size and migration of the population of the Russian Federationin 2015. 2016,

http://www.gks.ru/wps/wcm/connect/rosstat_main/rosstat/ru/statistics/publications/catalog/doc_1140096034906].

In recent years, urban settlements and agglomerations have improved their migration appeal, accumulating both domestic and foreign labor resources. Meanwhile, the outflow of the rural population of Russia to cities continues, which is partly offset by immigration of foreign citizens, who often give preference to rural areas (Figure 3).

Figure 3
NUMBER OF PEOPLE WHO HAVE ARRIVED TO URBAN AND RURAL SETTLEMENTS OF RUSSIA OVER THE PERIOD 2000-2015, THOUS. PEOPLE

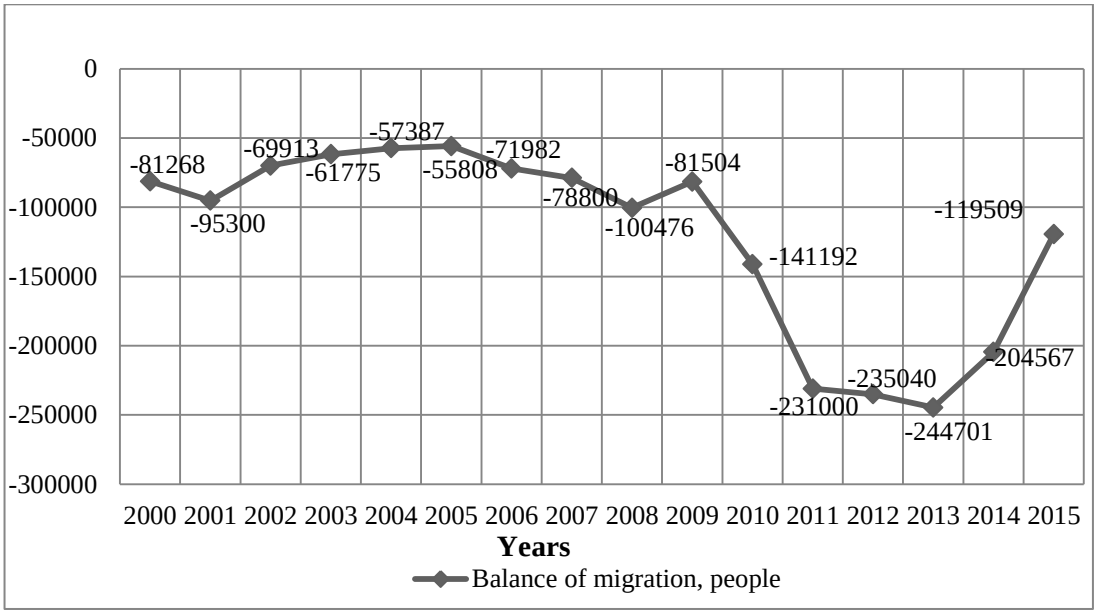


As a result of migration exchange with urban settlements, the rural areas of Russia have lost about 1.7 mln permanent residents over the past 15 years, with the most intensive urbanization processes occurring in 2011-2013 (Figure 4).

Migration of rural population to urban areas contributes to the excessive concentration of labor resources in relatively small areas and to the elimination of smaller settlements. The exploitation of agricultural lands, which are the main resource potential of the agribusiness of the country, becomes problematic without such settlements. When describing the current trends of population exchange with rural settlements in Russia, it must be noted that migration turnover grew by 1% in 2015 in comparison with the figure of the year before, including a 10% growth in the share of foreign citizens residing in rural areas. Meanwhile, migration loss amounted to

137,871 people in 2014 and 47,535 people in 2015, mainly due to women leaving the village, as their share among the migrants to the urban area is higher than that of men. On the contrary, foreign migrants living in rural areas, mainly for the purpose of carrying out labor activities, were dominated by men by 38% and 27%, respectively, over the period of 2014-2015.

Figure 4
BALANCE OF MIGRATION IN RURAL AREAS RESULTING FROM INTRA-RUSSIAN POPULATION EXCHANGE WITH URBAN SETTLEMENTS OF THE RUSSIAN FEDERATION OVER THE PERIOD OF 2000-2015, PEOPLE



Employable population shows the most active migratory mobility. The share of people of this age group in the total migration turnover of rural settlements amounted to 71.2% (1,961,827 people) in 2014 and to 70.5% in 2015; at the same time, the number of migrants (1,963,860 people) also increased. The number of foreign citizens of employable age amounted to 150,686 people or 77% in 2015. [Size and migration of the population of the Russian Federation in 2015. 2016,

http://www.gks.ru/wps/wcm/connect/rosstat_main/rosstat/ru/statistics/publications/catalog/doc_1140096034906].

Young people of the 15-29 age group accounted for half of all incomers and 55% of those who left rural areas in 2015. The share of people with primary vocational education and secondary (complete) general education predominates among the migrants from rural settlements. In some cases, a steady migration outflow of the employable rural population in the reproductive age affects the socio-economic development of these areas. The relevant problem of building the labor potential of the country's agriculture is attracting and securing the youth, especially in the agricultural specialties, due to their low prestige and low wages. There is a high demand for skilled livestock breeders, machine operators, agronomists, animal technicians, veterinarians, builders, drivers, engineers, turners, accountants, teachers and paramedics in the village. Lack of qualified specialists in the agribusiness of Russia hinders the implementation of the current policy of import substitution.

An increase in the migration differentiation of the country's territory broken down by

federal districts has been observed in recent years (Table 5).

Table 5
AGGREGATE MIGRATION GAIN (LOSS) IN THE RURAL POPULATION OF THE FEDERAL DISTRICTS OF RUSSIA RESULTING FROM INTRA-RUSSIAN MOVEMENTS OVER THE PERIOD OF 2013-2015.

Federal district	Balance of migration, people	Size of population as of January 1, 2016	Share of rural population, %
Central	-46,482	39,104,319	18
Northwestern	9,586	13,853,694	16
Southern	-81,227	14,044,580	37
Ural	24,007	12,308,103	19
Far Eastern	-29,351	6,194,969	24
North Caucasian	-116,610	9,718,001	50
Siberian	-110,315	19,324,031	27
Volga	-213,954	29,673,644	29
Crimean	-4431*	2,323,369	42

Source: Data on the Crimean Federal District are provided for 2015* [Size and migration of the population of the Russian Federation in 2015. 2016, http://www.gks.ru/wps/wcm/connect/rosstat_main/rosstat/ru/statistics/publications/catalog/doc_1140096034906]

Traditionally high rates of outflow of rural population to urban settlements of Russia are typical of the peripheral regions of the Volga, North Caucasian, Siberian and Southern Federal Districts. However, taking into consideration that the North Caucasian Federal District has high natural population growth and share of rural residents, a depopulation type of population reproduction has been formed in most regions of the Volga Federal District, along with a decrease in the share of rural residents, which affects the labor potential of the local population and sustainable development of territories. On the contrary, the positive balance of migration in rural areas in exchange with urban settlements has been observed in the Ural and, in recent years, the North-West Federal Districts.

Major million-strong cities – Moscow, Saint Petersburg, Kazan, Ufa, Yekaterinburg, Nizhny Novgorod, Samara – primarily enjoy migratory attractiveness for rural residents. At the same time, many rural migrants prefer to move to regional, republican and district urban settlements, because this often shortens the duration of social adaptation.

There are various reasons that impact migration flows, but it is primarily the lack of opportunities for an adequate life in the donor regions. The determinants of intra-Russian migration of the rural population include the uneven socio-economic development of the country's territories and the associated low level and quality of life in rural areas in comparison with urban settlements; low level of wages in agriculture and the public sector; unsatisfactory rates of construction and commissioning of individual residential buildings in rural areas; lack of or insufficient support of the rural population by local authorities in the employment matters; unemployment due to a shortage or lack of vacant jobs for the employable rural population; a weak level of development of the social, road, transport, engineering and telecommunications infrastructure; limited opportunities for educational, professional and personal development.

DISCUSSION OF RESULTS

Urgency of the problems identified in the study determines the expediency to develop a set of priority areas for the development of the labor potential of the rural population, including measures in the fields of healthcare, education, socio-economic and migration policy of the state, including:

1. Maintaining and strengthening the health of the rural population as one of the key components of the labor potential:

- construction and reconstruction of the rural health posts, as well as better transport and information equipping of district doctors;
- provision of high-quality and affordable healthcare services;
- decrease in the share of rural population addicted to psychoactive substances; and
- propaganda of self-preserving behavior and a healthy lifestyle.

2. The following tasks need to be solved to ensure an adequate quality of life for the rural population:

- Increase of the level of wages in the economy, since they remain the main motive and material incentive for labor activities. In turn, the level of income determines a standard of living, which is a factor of the development of the human potential of the population, in particular rural population. It is very important to have a job with decent salary in modern society, which allows to ensure economic freedom for a working person and their family, which means solving housing problems in a place of residence, getting medical services on a commercial basis, developing, having vacations, etc.
- Implementation of new industry remuneration systems in order to ensure uniform approaches to regulating the wages of employees of budgetary organizations towards raising their remuneration. Equalization of the differentiation in the levels of remuneration in the branches of the national economy of the country in general is required. Average cost of labor in each profession must be calculated and codified at the state level. Regulating authorities are required to exercise control over employers in order to prevent labor remuneration below the subsistence level set in each region.
- Assistance in solving housing problems of the rural population. This area suggests using a mortgage lending system with state interest rate subsidies and elimination of the down payment in order to create opportunities to purchase housing under construction or ready-made housing, as well as land to build a house on. Development of regional housing programs with the participation of employers focused on the specialists in demand in rural areas is advisable.
- Construction and modernization of social infrastructure in rural settlements. The most important elements of the rural social infrastructure, which the rural population needs along with housing, include healthcare, educational, recreational, sports, retail and catering facilities. Development of these infrastructure components creates the conditions for increasing the intellectual, moral and physical health of the rural population and thereby contributes to the development of human potential. Availability of kindergartens, schools, health posts, cultural and sports centers in rural areas will slow urbanization processes. In this regard, it is advisable to take into consideration the experience of Belarus in the construction and development of agro-towns, which are modern and well-equipped rural settlements, where industrial and social infrastructure is created to ensure high social standards and an adequate standard of living for the local population and residents of the adjacent territories.
- Payout of a lump sum cash benefit – "rural maternal capital" – for each child born who has lived for more than three years in the village in the regions with the established depopulation type of population reproduction.

3. Intensification of entrepreneurial activity and self-employment is considered one of the key strategic areas of development of the labor potential of the rural population, including:

- creation of favorable conditions for the development of self-employment and small business of rural youth in agribusiness, including through preferential taxation and non-reciprocal subsidization of the promising business initiatives.

- Grant support for rural youth projects and entrepreneurial initiatives (Kakkar, Vikas and Yan, Isabel K.M., 2011).

- Stimulation of investment activities, including through the reduction of the tax burden on investors engaged in investment projects in agriculture.

- Intensification of social responsibility of business in rural areas. State incentives in the form of grants, subsidies and tax preferences can intensify business efforts related to the implementation of educational and cultural programs, projects for the upgrade of rural areas, renovation of local infrastructure and various social events.

- Development of a state program to support ethno and agro-tourism. The rural residents can position their settlement as a tourist destination and actively promote various services and products by attracting investors, partners and customers (Peri, Giovanni, 2016). This will result in creation of additional jobs in the village and promote intercultural communication and the in-depth development of rural residents. It is advisable to strengthen this area in the context of the upcoming World Cup 2018, during which tens of thousands of foreign tourists can be introduced to the recreational and cultural component of rural areas of Russia.

- Reduction in unsustainable employment of rural population through mandatory conclusion of long-term employment agreements and strengthening of control over employers' compliance with all labor rights and provision of social guarantees for employees.

- Overcoming the culture of social dependency, formation of a stable focus on active participation in the life of the small motherland in the youth as a condition for improving the quality of life of the territory.

4. The following priority tasks must be solved in order to increase the educational and professional level of the rural population as a fundamental component of the labor potential:

- Development of the labor potential of the rural population by their professional training, advanced training and retraining. Continuous education should take a central role in the training system for agribusiness. Motivate rural residents to study and acquire new knowledge, skills and competencies throughout their lives.

- Adjustment of the structure of vocational education, taking into consideration the prospects of socio-economic development of rural areas, conducted on the basis of monitoring the labor market demands.

- Broad application of opportunities of distance learning and contract form of employment for graduates of educational institutions.

- Development of regional programs of agricultural exchange of highly qualified specialists for the dissemination of positive labor and entrepreneurial experience. Establishment of Centers of Excellence in agroindustrial production is advisable (National Farmers' Federation, 2014).

- Introduction of travelling seminars, short-term courses and special programs for training personnel that is in demand in rural areas into broad practice.

- Creation of opportunities for teaching the rural population the most popular skills: computer literacy, work on the Internet, customer care in the service sector, training communicative skills.

- Involvement of small and medium-sized businesses in training of young professionals for agribusiness, which suggests provision of opportunities for internships and subsequent employment. In addition, successful managers of agricultural enterprises can act as mentors and tutors for beginning entrepreneurs and young specialists.

- Development of innovative approaches to evoke the interest of pupils and students in the problems of the agribusiness of the country and their active involvement in participation in agricultural exhibitions and competitions.

- Procedures for testing and interviewing the graduates of rural schools in order to find out shortcomings in acquired knowledge and competencies. This information can provide a more objective picture of the level of graduates' training and then allow to strengthen the labor potential of the rural youth (Regional Stewardship Department, 2012).

- Expansion and deepening of the work on informing the rural youth about the state of the regional labor markets, trends of their development, job opportunities on shift and seasonal jobs.

New opportunities for entrepreneurship and self-employment rapidly emerge during the establishment and development of the digital economy. Interactive platforms of talents as one of the tools of the digital economy help the unemployed population and as those who seek for

additional income self-realize, turning them into active economic entities. More and more specialists in urban areas abandon the traditional stationary workplace and move on to remote cooperation, in particular using such online platforms as Freelancer.com, Free-lance.ru and Prohq.ru. At the same time, freelance job encourages performers to constantly improve their qualification and expand their specialization. More active use of digital technology by the rural population, mainly young people, in the field of employment will contribute both to the development of their labor potential and to the diminishing intensity of urban processes in Russia.

Modern digitalization offers a great potential for developing the labor potential of the rural areas. At the same time, those who are receptive to changes will benefit and take advantages, as opposed to those who resist and ignore them. Therefore, the rural employable population should repeatedly upgrade their professional and educational skills throughout the working life, including timely acquiring new information and communication technology in order to ensure their relevance and competitiveness in the labor market.

5. Promoting interterritorial mobility with the purpose of developing the human and labor potential of the rural population in result of acquiring new knowledge, skills and experience can be achieved through the following measures:

- Elimination of administrative barriers to internal migration and ensuring freedom of travel for Russian citizens and their choice of the place of residence and stay within the country through a transition from permissive to declarative registration at the place of residence.
- Modernization of the transport infrastructure with the purpose of saving time while improving the quality and availability of rail, road and air communications. The developed transport links between rural and urban settlements in Russia will provide an opportunity for rural residents to obtain education and modern professional skills, to work, rest and travel, thus contributing to the development of their labor potential without the need to move to other regions and countries for permanent residence.
- Expansion and deepening of the work on informing the population and employers through the mass media about the state of regional labor markets, trends of their development and employment opportunities. Improvement of the mechanism for collecting and disseminating information on employment opportunities for citizens to other regions for seasonal and temporary jobs. Annual identification of the migration patterns of the rural population (conducting sociological surveys and identification of the main causes of migration of the employable population).
- Partial or full reimbursement by the government of the expenses of the rural youth associated with moving to another settlement and training in the popular specialty in case of concluding an agreement on subsequent employment in the rural area.
- Provision of financial opportunities for moving and adaptation of young Russian specialists, graduates of agricultural higher educational institutions, agricultural technical schools and colleges in rural settlements. The government should offer Russian citizens a social benefit package that can include compensation for the transportation expenses of the migrant and their family members, associated with moving to the countryside; provision of accommodation and a lump sum adaptation benefit.
- Development of the programs to attract seasonal and shift workers in all sectors of agriculture will allow to partly reproduce the quantitative parameters of the labor potential of the agribusiness of the country.
- Reimbursement by the government of the expenses of the rural youth associated with moving to another settlement and training in the popular specialty in case of concluding an agreement on subsequent employment in the rural area.
- Advisable introduction of a system of preferences and measures of state support for foreign labor migrants who are willing to work in rural areas and possess a profession or qualifications, the demand for which cannot be satisfied by internal labor resources.
- Targeted measures are required to attract workforce to the social sphere of the territories with a corresponding shortage. The program "Country Doctor" that has been implemented since 2012 and is aimed at overcoming the shortage of personnel in rural healthcare can serve as a positive example.

The growing importance of the development of rural areas, modernization of agribusiness and strengthening of the labor potential of the rural population have all focused increased attention to this range of problems on the international agenda. The member countries of the Organization for Economic Co-operation and Development (OECD) took a course to build a new agricultural paradigm in 2006, which assumes a radical reform of the state policy in agribusiness and a contemporary approach to the development of the rural labor resources. The action plan "New Rural Policy: Linking Up For Growth" was developed. The need to modernize rural areas and their labor potential was also noted in the framework of the VIIIth OECD Conference "Innovation and modernization of the economy of non-urbanized regions" held in Krasnoyarsk in 2012 (Organization for Economic Co-operation and Development OECD, 2015).

In our opinion, the analysis of the experience of the European Agricultural Fund for Rural Development (EAFRD), which has the provision of a high quality of life for the rural population and the diversification of the rural economy as a strategic goal (Tudor, Monica, 2009), seems practical and expedient.

It is very important to establish a high-tech, productive and competitive agribusiness in the context of globalization, increasing risks and opportunities. This aim cannot be achieved without investing in the human capital assets of the rural population. The state should develop the labor potential of the population as a pillar of its own geopolitical and socio-economic security by promoting the improvement of the living standards of the villagers, maintaining their health, upgrading local infrastructure, providing opportunities for education, employment and running private business.

CONCLUSION

Human resources in rural areas are a prerequisite for food security and a key factor of the socio-economic development of Russia. Despite the positive changes, the overall socio-economic situation in the countryside currently remains complicated. This article analyzed such acute socio-economic problems of agrarian territories as unemployment, which leads to the dequalification of the workforce and the accelerated depreciation of human capital assets, growing poverty and increased economic inequality, and a weaker motivation to look for a job. The authors have justified the need for the development of rural areas as the creation of contemporary social, road, transport, engineering and telecommunications infrastructures; creation of new opportunities for educational, professional and personal development of the rural population.

In this regard, there are the following priority areas of the development of rural areas in the context of improving employment rate and efficiency of using the labor potential: overcoming the scale of rural unemployment and improving the efficiency of the use of the rural labor resources; stimulating the creation of new jobs; developing tourism and associated labor-intensive service industries; eliminating the high level of the personnel turnover in agribusiness; increasing the number of graduates of agrarian educational institutions settled in rural areas; eliminating the negative demographic processes and trends (falling birth rate, growing level of mortality and morbidity, addiction to psychoactive substances, etc.); creating conditions for the development of territorial mobility of citizens; improving the material wealth and social security of rural residents, declining psychological dissatisfaction with working, living and leisure conditions; easing the informal, hidden and incomplete employment in rural areas; and preventing the ongoing process of releasing labor from the sectors and branches of the rural economy.

In their future studies, the authors are going to establish the impact on the labor potential of rural areas of such important factors as the capital-labor ratio of agricultural production, dynamics of investment in agriculture, features of self-employment and the development of households in rural areas. In conclusion, it should be noted that the measures proposed in the study and aimed at developing and implementing the labor potential of the rural population of Russia can be used in the development of the federal and regional programs for socio-economic development, thus contributing to the sustainable development of rural areas.

BIBLIOGRAPHY

Mirzabalaeva F.I., Alieva P.R. Faktory formirovaniya trudovogo potentsiala naseleniya selskikh territoriy [Factors of building the labor potential of the population in rural areas]. Bulletin of the Tver State University. Series: Economics and management. 2016. No.4. pp. 117-123.

http://www.gks.ru/wps/wcm/connect/rosstat_main/rosstat/ru/statistics/wages/labour_force/#

Federal target program "Ustoychivoye razvitiye selskikh territoriy na 2014 - 2017 gody i na period do 2020 goda [Sustainable development of rural areas for 2014-2017 and for the period through to 2020]"// "Collected Legislation of the Russian Federation", 29.07.2013, No. 30 (Part II), Article 4110.

Obsledovaniye naseleniya po problemam zanyatosti [Survey of population on employment issues] – 2015. Access mode: http://www.gks.ru/bgd/regl/b15_30/Main.htm

Rabochaya sila, zanyatost i bezrabotitsa v Rossii (po rezultatam vyborochnykh obsledovaniy rabochey sily). [Workforce, employment and unemployment in Russia (based on the results of sample labor force surveys)] 2016: Statistical book/Rosstat. – M., 2016. – 146 p.] Federal State Statistics Service. Official site. Access mode: www.gks.ru.

Bondarenko L., Tatarova L. Zanyatost selskogo naseleniya i sotsialnaya zashchita bezrabotnykh [Employment of the rural population and social protection of the unemployed population] // Economics of agriculture in Russia. 2014. No. 2. pp. 58-65.

Rodionova L.V. Bezrabotitsa kak faktor selskoy bednosti i neustoychivosti selskikh territoriy [Unemployment as a factor of rural poverty and unsustainability of rural areas] // Sociology in the modern world science, education, creativity. 2012. No. 4 (4). pp. 155-158.

Demograficheskiy yezhegodnik Rossii – 2015 [Demographic yearbook of Russia – 2015].: Statistical book/Rosstat. – M., 2015. – 264 p.] Federal State Statistics Service. Official site. Access mode: www.gks.ru.

Shichkin I.A. Migratsiya naseleniya kak faktor vyravnivaniya sotsialno-ekonomicheskoy differentsiatsii regionov Rossii [Migration of the population as a factor of equalization of socio-economic differentiation of regions in Russia]/ I.A. Shichkin // Living standard of population of the Russian regions, 2015. – No. 4 (198). – pp. 97-105.

Chislennost i migratsiya naseleniya Rossiyskoy Federatsii v 2015 godu [Size and migration of the population of the Russian Federation in 2015]: Statistical book/Rosstat. – M., 2016. – 169 p. Federal State Statistics Service. Official site. Access mode: www.gks.ru.

Kakkar, Vikas and Yan, Isabel K.M., 2011. Sectoral Capital–Labor Ratios and Total Factor Productivity: Evidence from Asia. Review of International Economics, 19(4), pp: 674–684.

Peri, Giovanni, 2016. Immigrants, Productivity, and Labor Markets. Journal of Economic Perspectives, 30(4), pp: 3–30.

National Farmers' Federation, 2014. Australian National Agriculture Workforce Development Plan. National Agribusiness Education, Skills and Labour Taskforce (NEST), pp. 4–37.

Regional Stewardship Department at Bow Valley College is coordinated by Corinne Finnie, 2012. Rural Workforce Development: Assessing Employer Needs and Improving Access to Training. Government of Alberta, Human Services, pp: 4–86.

Organisation for Economic Co-operation and Development OECD, 2015. New Rural Policy: Linking Up For Growth. Backround Document National Prosperity Through Modern Rural Policy Conference, pp. 5–36.

Tudor, Monica, 2009. Rural Labour Force and Multifunctional Development in the Territory. Agricultural Economics and Rural Development, New Series, Year VI, no. 2, pp. 235–247.