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Modern Tools for Sustainable Development of Territories. Special Topic: Project Management in the Regions of Russia

DEVELOPMENT OF AGRO-INDUSTRIAL COMPLEX IN THE CONTEXT OF THE PROJECT MANAGEMENT IMPERATIVES

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Abstract

Today, there are a number of complexes for the development of the national economy. The agro-industrial complex, the development of which includes the policy of import substitution and increasing the level of food security of the country is one of the key ones, so the fulfilment of its innovative potential becomes one of the main postulates. It is necessary to have the methodological apparatus and tools, which can be obtained in the presence of an integrated system for managing technical, economic and organizational changes, for the purpose of development and further introduction of new technologies into production, as well as for the implementation of previously not used ideas of the effective use of the agro-industrial complex (AIC) resources. Project management is the system that meets all the above-mentioned criteria today. Despite its universality, the methodology of project management for all sectors of the economy has not concerned agricultural production so far, because in the case of the AIC project management there is one important peculiarity - increased risks associated with the characteristics of climatic and biological changes. To be able to carry out innovation policy in the agricultural sector, it is necessary to have a vertical system of relations between the federal executive authorities and the authorities of the constituent entities of the Russian Federation, the main activity of which would be focused on the implementation of state programs and federal laws, as well as other normative legal acts which are in force in the agricultural sector.

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Keywords: Agro-industrial complex, innovations, projects.



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1. Introduction

Production efficiency is the main economic category, which reflects the effectiveness of economic laws and manifests the most important characteristic of the enterprise - its performance results. In agriculture, it is common to distinguish economic, technological, social and environmental efficiency. The vector of each branch's development is influenced by a system of factors that are the main causes and conditions of the production flow. Land, labour, capital and entrepreneurship are the resources of the productive activity of the enterprise and according to economic theory are considered as factors of production. It is essential to recall that the company's efficiency largely depends on a number of factors, such as climatic, economic, organizational, as well as management quality and the level of implementation of innovative technologies that promote more efficient use of available resources.

Presently, innovations, such as new developments in the field of technology, engineering, management and labor organization, which are based on the use of advanced experience and science, are of decisive importance in the process of increasing the competitiveness of agricultural enterprises, the profitability of its production.

The use of methodological elements and tools that make up the complex of project management will contribute to achieving the goals of improving the efficiency of production and the fulfilment of the innovative potential of the enterprise.

2. Problem Statement

Project management is regarded as a wide range of opportunities for the use of available internal resources of the enterprise, as well as for active attraction of additional investments, so the issues related to the use of basic elements of project management or the transition of the agricultural enterprises from classical management schemes to project management schemes are relevant today.

3. Research Questions

- 3.1. What is the current state of the sphere of innovation in the agricultural sector?
- 3.2. What are the peculiarities of innovative projects in the agricultural sector?
- 3.3. How can the procedure of innovation development in agriculture be implemented at the regional level?

4. Purpose of the Study

The purpose of the research is to study the trends of AIC innovative development and peculiarities of the project management application by the enterprises of the agro-industrial complex.

5. Research Methods

This paper analyses a number of expert assessments and calculations of Russian scientists, which have been published in the scientific literature, as well as a number of reporting documents and reports of

research organizations, including data from the Ministry of Agriculture of the Russian Federation and the Novgorod region, materials with statistical data from the Federal State Statistics Service, materials of periodicals.

Research and development of scientists in the field of management of innovative processes in the sphere of the AIC served as a methodological basis for this study, with the use of an integrated approach to the subject of study including comparative and systematic analysis, monographic method, as well as a logical approach.

6. Findings

Innovations in the AIC are usually understood as the introduction of new techniques, technologies, animal breeds, plant breeding varieties, fertilizing methods and means of plant and animal protection, methods of prevention and treatment of animals, approaches to training, skills enhancement and retraining of the staff, forms of organization and management of various sectors of the enterprise, approaches to social services that improve production efficiency and so on (Yurina, 2019).

There are positive and negative conditions and factors of innovative development of the AIC. The negative ones include departmental disunity, the weakening of the scientific potential of agricultural science, the complexity of agricultural production, the difficult financial condition of organizations, the strengthening of monopolization and others. Among the positive conditions it is possible to highlight the following: the retreat from the administrative management of the economy, the diversity of business organizational and legal forms, the use of technologies designed to preserve the productive capacity and others.

Increased activity in the field of innovation in various sectors of the economy will contribute to the transformation of the economy of the Russian Federation. Ensuring the competitiveness of domestic products of the agricultural sector in the foreign and domestic markets by creating, implementing and disseminating the latest achievements of science and technology is the key goal of the development of the agro-industrial complex of Russia until 2030, which was designated by the forecast of scientific and technological development of the agro-industrial complex of the Russian Federation (Forecast of scientific and technological development of the agro-industrial complex of the Russian Federation for the period up to 2030, 2017). The transition to highly efficient (accelerated selection), high-tech (food biotechnology, synthetic biology), efficient in terms of the use of available resources (balanced unified animal feed), fully adapted to local climatic conditions (irrigation systems of new generation) production of agricultural raw materials and products of high processing depth will contribute to the achievement of the above-stated goal.

Achieving the indicated above goal will require the implementation of a set of measures related to the development of the institutional environment, modernization of infrastructure, improvement of the investment climate, as well as the development of science, innovation and personnel training system. (Figure 01).

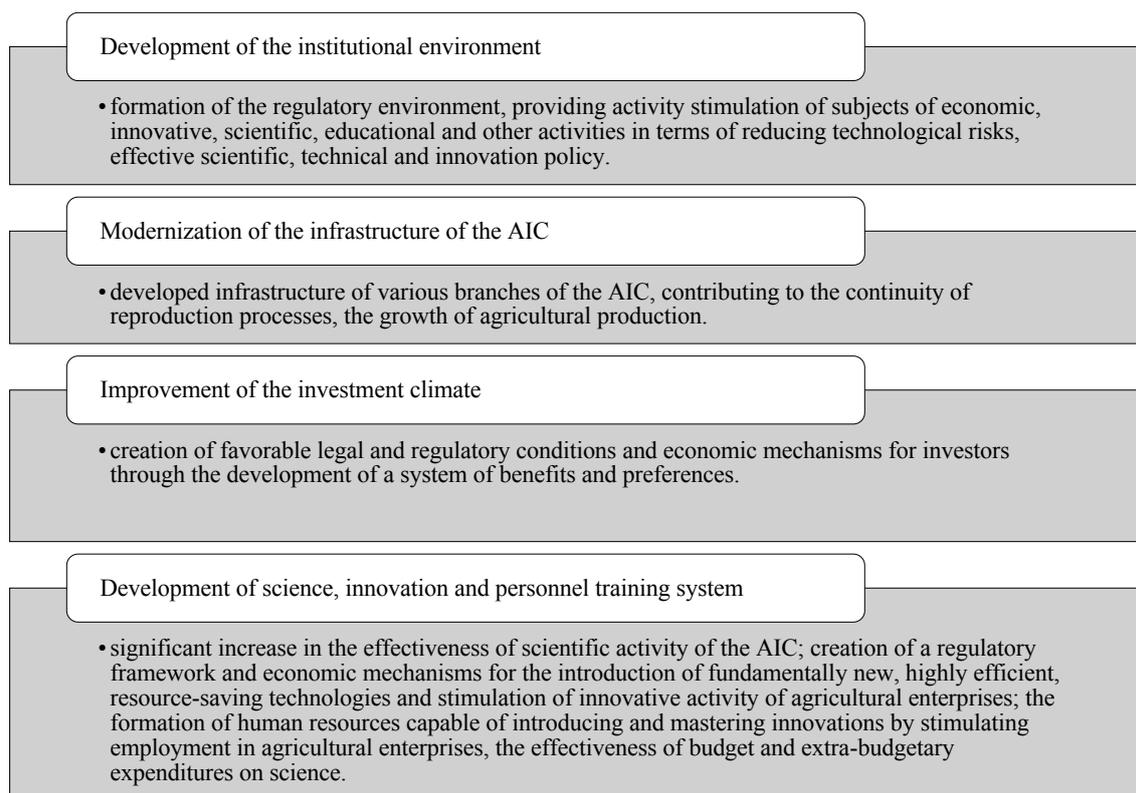


Figure 01. Measures to increase the competitiveness of the AIC; compiled by (Forecast of scientific and technological development of the agro-industrial complex of the Russian Federation for the period up to 2030, 2017)

Currently, the innovative development of agriculture is inertial. The trends for the creation and further use of innovations are as follows:

- technological modernization of the AIC proceeds slowly, at an unsatisfactory speed;
- the demand for domestic developments is low;
- weak link between the demands of practice and subject of research, as well as the predominance of fundamental research over applied;
- insufficiency of private investment in R & D;
- the spread of advanced technologies mainly in large enterprises that have the financial ability to buy them;
- remaining lagging behind of the domestic agricultural sector from countries with developed agricultural production in terms of labor productivity (Garifova, 2014; Romanova, 2017).

The level of technological innovation activity of agricultural organizations at the end of 2016 amounted to 3.4%, including in the crop industry - 3.7% (3.9 % in 2017), in animal husbandry - 3.9% (2.9% in 2017). Among the organizations that implemented such innovations, 23.2% of agricultural enterprises carried out product innovations, and 76.0% – process innovations (Bogachev, 2019).

The level of activity of companies producing food products, including beverages and tobacco products, in the field of innovation, which is estimated by the share of enterprises using technological

innovations in their total number, over the last decade was established at around 9 - 10%. In 2017, its maximum value was recorded, only slightly exceeding the same indicator for industrial production as a whole (10.8% vs. 9.6%).

Investments in research and development of new products, services and methods of their production and transfer, new production processes in the total cost structure of the food industry amounted to 45.2% (Figure 02), for comparison: in 2010 – 20.8%, which is an indicator of the growth of business demand for the development of domestic science. The share of expenditure on other “intellectual” types of innovation – the purchase of new technologies, software, personnel training, marketing research – does not exceed 2.4% (Federal State Statistics Service, 2019).

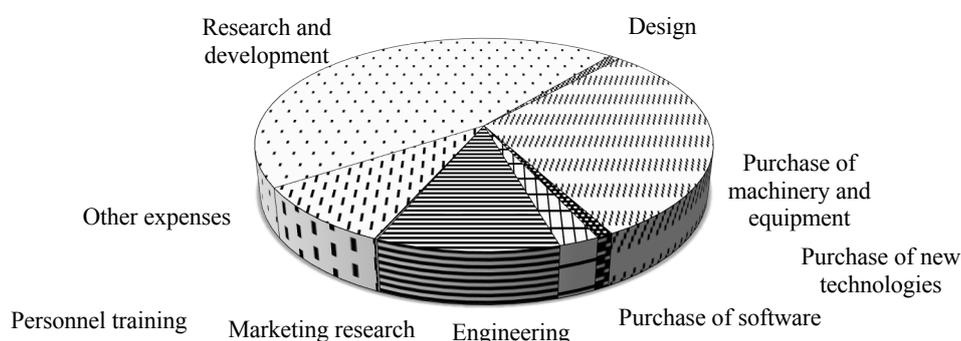


Figure 02. Expenses on technological innovations of the organizations by types of innovative activity in constituent entities of the Russian Federation in 2018

The main condition for increasing the efficiency of the region's development is the formation of sufficient innovation potential. The level of innovation activity (the share of organizations that implemented technological, organizational, marketing innovations in the reporting year, in the total number of surveyed organizations) in the Novgorod region, as well as other constituent entities of the North-Western Federal District, can be characterized, given the number of organizations that are engaged in the implementation of innovative achievements. According to Rosstat (Federal State Statistics Service, 2019), in the period from 2013 to 2017 the number of innovation-active organizations is changing, besides, the maximum level of activity – in 2015, when 8.9% of the total number of enterprises surveyed were engaged in innovation activity. The minimum level of innovation activity of organizations during the analyzed period was noted in 2013 (6.6% of the total number of the enterprises surveyed).

According to Rosstat (Federal State Statistics Service, 2019), in the period from 2013 to 2017, the number of advanced industrial technologies used in 2017 increased by 17.8% (from 1684 units in 2013 to 1983 units in 2017), and the volume of innovative goods, works, services for Novgorod region has changed from 5976,6 million rubles to 7467,4 million rubles (+24,9%) (see Figure 03).

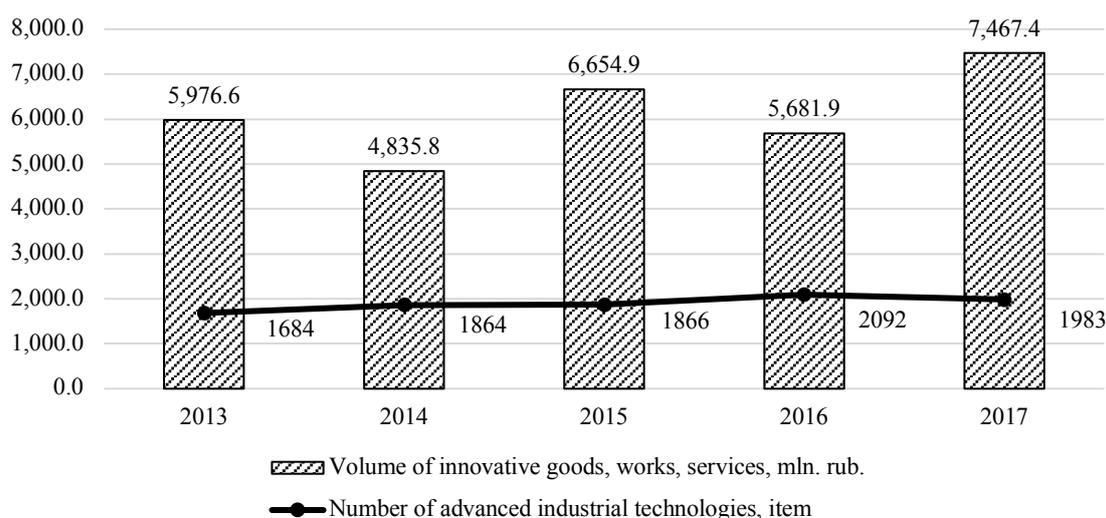


Figure 03. Comparison of innovative goods, works, services with the number of innovative technologies used in the Novgorod region

The low proportion of organizations and their employees who are engaged in research and development in the field of innovation is of particular importance for the development of innovation activity. It is known that in 2017, only 19 (0.12%) out of 15762 enterprises and organizations of the Novgorod region, were engaged in research and development by type of economic activity; the number of employed workers is 1739 people or 0.28% of 612.5 thousand people (Federal State Statistics Service, 2019).

Regarding the use of innovations in the AIC of the Novgorod region, the situation is very complicated. In the Novgorod region, the share of enterprises engaged in food production, which implement advanced production technology, is rather small and set at the level of 4-5% in 2017-2018. The main amount of expenditure on innovation in the field of technology was spent on the purchase of machinery and equipment (about 45.3% of the total amount of expenses) and the amount spent on researching new products and services amounted to 48.8% of all spent funds. The budget was practically not involved in the areas of marketing research, purchase of new technologies, software, personnel education and training related to innovation (Federal State Statistics Service, 2019).

Subsidizing the credit rate (together with the federal budget) for investment projects is the main vector of regional agricultural policy in the Russian Federation. Periodically, as a support act of the subprograms of resource-technical provision development are implemented as supporting measures, for example, the program of drainage networks development, networks of logistics centers, etc. In some regions, the program “Technical and technological modernization, innovative development” is implemented as a subprogram of agricultural development up to 2020.

The state program of the Novgorod region “Development of agriculture in the Novgorod region in the years 2019-2024” is approved by the resolution of 18.06.2019 No. 222. Activities for research in priority areas of the agricultural sector and the development of automated management of agricultural production are described by the subprogram “Ensuring the general conditions for the functioning of agricultural sectors”. The subprogram provides for the improvement of the general conditions for the functioning of agriculture by increasing human resources potential in agriculture, scientific support for

the development of agricultural sectors, the formation of state information resources in the field of agricultural management.

The implementation of the priority regional project called “Digital agriculture”, whose tasks include the introduction of digital information technology platforms and solutions in agricultural production, the formation of state information resources in the industry is also included in the subprogram “Ensuring the general conditions for the functioning of agricultural sectors”. The volume of the state program funding – 3665105.09 thousand rubles. The share of funds for the subsystem support – 1.5% (57009.4 thousand rubles). Of these, 540 thousand rubles will be allocated for research of a scientific and applied nature in the field of agriculture; implementation of the priority regional project “Digital agriculture” – 14200 thousand rubles; purchase, modernization, provision of server and network equipment, data storage systems, server software, software management and control systems of telecommunications infrastructure, special licensed software and information systems of the Ministry – 6200 thousand rubles. Thus, we can assume that the fulfilment of the objectives of the above-mentioned program will contribute to the implementation of innovations in the agro-industrial complex of the Novgorod region.

The innovative potential of the agro-industrial complex of the region consists of resources that are mobilized to achieve the innovation goal, as well as the organizational and economic mechanisms for their implementation. A project, which is an activity limited in time, budget, requirements for the volume and quality of work, characterized by uncertainty, which has a quantitatively and qualitatively defined goal of creating a new unique final product (service) or a new quality and is undertaken to obtain strategic benefits can be considered as such a mechanism (Trifonov, Grishakina, & Yurina, 2019). Project processes aimed at the future effectiveness of the organization are usually carried out in temporary structures within the framework of strategic goals and plans of the organization. The use of project management methods allows to overcome three main project limitations – to meet deadlines, not to exceed the budget and to perform the scope of work with the declared quality (Kuprava, 2008).

A promising innovative project in the field of agriculture can be described as the one aimed at the creation, testing and further implementation of new or improved products, technologies or services that have a high level of demand from the agricultural sector and focus on its commercialization in the trial or pilot production.

The majority of activities for the implementation of promising innovative projects in the AIC, are aimed at carrying out a number of measures to achieve economic effect and to make use of innovation, including the commercialization of scientific and technical results in the following areas:

- animal husbandry, poultry breeding and aquaculture;
- reproduction of agricultural plants, animals, birds and objects of aquaculture;
- soil fertility improvement;
- increase of profitability through the introduction of technological processes and mechanization;
- agricultural products processing;
- development of fodder production technologies (Denisov, 2018; Pritchard & Bullock, 2014).

Such projects are frequently implemented at enterprises alongside with the main activity and initiated within the framework of strategic plans. Temporary design and innovation groups or project teams are created for each project. Complete reorientation of the organizational structure to project management on a permanent basis (the so-called business management through projects) is more effective for consulting, construction, software, implementation profile. With regard to agriculture, the first variant of work, when innovative and investment projects are carried out alongside with the main activity of the enterprise in temporarily created structures is relevant.

The criteria to be met by promising projects in the field of innovation are as follows:

- the project in the field of innovation should include technical and financial support, and should be implemented in practice;
- there should appear a potential buyer willing to purchase products during no more than three years at the time of an innovation project implementation in practice and pay not less than twice the sum of the of budget spent on this project;
- the project should be implemented within three years;
- the project should have obvious advantages over their counterparts;
- the project should be implemented in such a way as to ensure the effective use of the funds allocated for its creation;
- the finished project should be universally used and implemented in various regions of Russia with similar natural and climatic conditions.

State support plays a significant role in this process. It should be expressed in the provision of various ways of forming the long-term technological capabilities, funding for basic and applied research. Therefore, the government is faced with a problem related to the significant expansion of project funding for research, increasing the share of funding for research projects, the development of large long-term scientific and technical programs in priority areas of agribusiness development in order to reach the level of leading foreign innovators.

7. Conclusion

In conclusion, it should be noted that the introduction of project management methods in enterprises with established business may not contribute to the expected benefits, but only complicate the management procedure. But such a judgment can be correct only in the perspective of a limited time period of extensive development. It should not be forgotten that the market factors discussed above will contribute to the introduction and further use of innovations and updates throughout the time. Based on this, economic entities make a decision on the implementation of project management methods, guided by further prospects of economic benefits or strategic plans.

The use of project management methods at the enterprises of the agro-industrial complex, in particular the implementation of innovative projects, allows to more reasonably determine the goals and optimally plan the strategy of the organization. Project management will provide an opportunity to take into account risks, reduce the amount of resources used, as well as to avoid conflict situations; to control

the execution of the development plan drawn up and adopted at the enterprise, to analyze actual indicators and make timely correction in the course of work, to accumulate and use successful experience in the future.

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