

THE GENESIS OF INNOVATION AND INVESTMENT POLICY IN TERMS OF TECHNOLOGICAL TRANSFORMATION OF AGRICULTURAL ORGANIZATIONS

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Abstract. The relevance of the study of the genesis of theoretical and methodological foundations of the formation of innovative investment agricultural organizations' policies appears under the pressure of technological transformation in the sustainable development of the economy. The beginning of the 21st century is marked by frequent cycles of both development and stagnation of economic trends. Disclosure of the transformation ontology involves identification of changes in all the functional processes of the studied object, including the relationship of the subject (active or passive activity) to objects and instruments of influence. Markers and indicators measuring the level of quality and the return efficiency of transformed objects are also subjects to changes.

1 Introduction

Low innovation activity concerning the use of innovations in the field of management decisions is explained by the established mentality that was formed in the context of stagnation of Russian production, which occurred in the late XX and early XXI centuries (1985-2010). This production stagnation is due to the lack of public and private investment funds against the background of a high level risks and credit interest rates for enterprises in the agricultural sector. The stagnation of production was aggravated by the steady monopolization of industries in which a large part of the market was controlled by several large manufacturers, existing primarily through state subsidies. Management innovations are always marked with financial costs and loss of time, which reduce the innovative activity of organizations in the agricultural sector, and therefore, determine the genesis of innovation and investment policy in agricultural organizations.

2 Discussions

In general, the concept of "transformation" is defined as the transformation of structures, forms and methods of economic activity and a change in its target orientation. The transformation of property is a consequence of the action of objective economic laws (higher needs, the economy of time, etc.) [Rumbaeva N.N.].

Studying the technological transformation in the agricultural sector as a part of the agro-industrial complex

(AIC), one can identify both objective constants and variable definitions. Therefore, an important factor of transformation in agriculture is the integration of agricultural producers with enterprises in other sectors of the agro-industrial field, which are involved in the processing and sale of the products themselves within the framework of creating integrated formations [Shogenov AM, 2004].

Currently the specifics of the transformation and functioning of farms of the rural population are determined by the need to increase the share of agricultural products in gross output and sales. The study shows that the high cost of consumed products in rural areas, rising unemployment, income below the subsistence level, decline of the agricultural organizations' number should be subjects to change. [Davletbaeva LR, 2015].

Transformation is determined by the incompleteness of changes in the economy of agriculture. The process of qualitative reorganization of any economic system as a process of transformation is due to changes in economic mechanisms, relations to property and to forms of management. The genesis of the conditions of economic freedom for business entities with the goal of moving the country to a new stage of development and its integration into the world community becomes important.

It can be noted that among the main directions of transformation of the agricultural complex, the following stand out: the complexity of the organizational structure; overcoming the trend of de-industrialization; transition from compression to expansion of agricultural field; change in production trends; change in agricultural

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Table 1. Directions of innovative impact in the agricultural sector, determining the genesis of innovation and investment policy in agricultural organizations.

Sections of directions	Description of innovations implementation areas
Breeding section	Creation and continuous modernization and selection of plants and animal breeds, bird crosses. The cultivation of varieties and species not only in terms of the best quality component (meat and milk breeds, milk yield, harvest), which become resistant to various diseases and pests, harmful factors in the environment, adapt to the climatic zones of the Russian Federation and competitive in the global agricultural market
Production and technical section	New approaches and methods in techniques and technologies in the cultivation of crops. New industrial technologies in animal, fish and poultry farming. Science-based plants and animal farming systems, the introduction of new fertilizers and plant protection systems, provided they are environmentally friendly and harmless to soils and humans. New resource-saving technologies for the production, processing and storage of farm products, stimulating the increase in consumer value of agricultural products and the degree of customer satisfaction
Organization and management section	Creation of integrated structures in agro-industrial field in order to save on technology and jointly organize sales activities. New recommendations on the maintenance, equipment and resource support of the agricultural sector. Development of new forms of staff motivation and quality labor incentives. Marketing strategy for innovation in the agricultural sector, attracting government subsidies and loans. Creation of consulting services for owners of production in the agricultural sector for the purpose of legal and investment advice. Tax exemptions for those employed in the agricultural sector
Social and economic section	Creating staff service and joint labor activity with research teams of specialized universities and enterprises for product processing. Improving working conditions, solving the problems of health care, education and culture of residents of rural areas and people involved in the production of agricultural products. Facilitation of the migration regime for labor. Improvement of the quality of the natural environment. Ecologically friendly labor and recreation
Digitalization	A diverse approach to transaction costs for the purchase and sale of agricultural products and simplification of the supplying products logistics from the field to the final consumer through networks and specialized exhibitions. The digital base for decision support systems in the agricultural sector. Analytics and forecast for all steps of the agro-industrial complex (forecasting yield, climate risks, etc.). Big Data Technologies

specialization; intensification of the processes of concentration and polarization of the countryside [Kunitsa M.N., 2017].

A relatively new trend in all sectors of the economy is a digital transformation that directly causes changes in the agricultural sector. Digital tools define the genesis of technological transformation as a process of transforming economic activity in an industry. Digital tools are technologies and platform solutions that are designed to generate, process, deeply analyze and transmit analysis results in the form of numerical information about objects and subjects of the agricultural economy. Information is accumulated and processed on such platforms for the subsequent adoption of management decisions that provide a technological breakthrough in the agricultural sector of economy [Ganieva I.A., 2019].

A technological breakthrough is possible with management innovations in the general innovation and investment policy, where management innovations are the aspect of change of the established practice. Management innovation leads to transformations in organizational, information-technical and social components.

Therefore, referring to the main idea of the study, it should be mentioned that the investment concept is a fundamentally new approach to the investment process, based on a specific example, idea or approach, opening up a financial, social or technological result. If we shift the idea of the investment concept to the sphere of the agro-industrial complex, then fundamentally new

technologies, approaches or projects arise that can significantly increase productivity, while taking into account the differentiation of many areas of the agro-industrial complex.

3 Materials and methods

To test the proposed hypothesis, statistical analysis and synthesis of ontological approaches to innovation and investment policy are used. To determine the dependence of various indicators of innovation and investment policies of agricultural organizations on the digitalization level of the market environment, the following qualitative indicators and characteristics are studied:

- new generation equipment, the latest technologies and developments, information databases, staff qualifications and retraining, the latest management decisions;
- restructuring of the main forms of modern production in the agricultural field;
- creating of a new capital formation system;
- structural adjustment of the agricultural system and mechanisms for financing and supporting the agricultural sector;
- resource support for the transition of the agricultural system to an innovative development, which is a consequence of attracting investment flows to the economic process;
- a group of socially significant functions, where investment processes lead to the creation of new jobs in the agricultural sector, the development of the social

sphere in the agricultural sector and the expansion of the group of social support measures and the attraction of new personnel in the agricultural sector;

- due to the food sanctions and within the framework of food security policy, the agricultural sector has been and remains one of the priority areas of economic development.

4 The research part

The study identifies the main typical directions of innovation stimulation in the agricultural sector, which determine the genesis of innovation and investment policy in agricultural organizations [Gerasina Yu.A., 2011, Gerashchenkova T.M., 2014; Salomatin V.A., 2011; Makarova, 2019]. The following are presented in table 1.

Important vectors are based on logic and expediency, implying changes in relations with state structures, partners and contractors.

First, the transformation of relations with the state authorities becomes mandatory, which should have patronage and state aid routes. Reducing the timing of technologies' adaptation and their intensive integration is not possible without state support of the agricultural producer. Obviously, there are such stimulating measures needed as:

- provision of subsidies and simplified document management subsidies;
- reduction of key interest rates on loans;
- legislatively defined transparency and insurance expediency of production and property, taking into account the peculiarities of agriculture;
- the presence and willingness of the state to help in providing developed;
- infrastructure, which is in a crisis condition not only in rural settlements, but also in small towns.

Secondly, the transformation of the subjective relations of labor resources and rural residents to the development, adoption of informatization and digitalization technologies in society. An entrepreneur and a worker in agriculture cannot provide himself with computing power, information systems and services, as well as digital platforms created with the priority use of domestic technologies due to their high financial cost. It is also obvious that the agricultural producer will not have its own or attracted financing for information and digital technologies due to the fact that the industry is low profitable. This is a barrier to the equal development of all Russian territories.

Thirdly, the transformation of relations to a weak opportunity and security of the financial sector for the agricultural field, including the absence of special sparing bankruptcy (insolvency) procedures for the agricultural producer.

Fourth, a change in the attitude to high risks of the agricultural sector, which should provide insurance cover for circumstances of unforeseen power. These must be carried out on the basis of simplifying procedures for agricultural production.

Fifth, a change in attitudes towards agricultural production means, which should be at the highest technological level to ensure Russia's food security.

Sixth, a change in attitudes toward solving problems in the creation, modernization and development of the production infrastructure for processing, elaborating and storing of agricultural products.

Seventh, a change in the attitude to the process of supervision, both on the part of state structures and on the part of controlled agricultural entities.

Eighth, a change in attitudes towards the process of forming professional competencies in the educational process of labor resources for the agricultural industry [Botashev A.Yu., 2013; Shcherbina T.A., 2019].

The transformation of the agro-industrial sectors complex provides for targeted and progressive improvement of economic, organizational, management, technical and technological, manufacturing, social, trade, market and other components of this system [Nikulina O.V., 2013].

Therefore, it is appropriate to talk about the impact of technological transformation in the agricultural sector, which can be implemented in the form of innovation and investment projects with a long life cycle, including periods of development and commercialization of innovations, a high level of knowledge, and the uncertainty of the final result [Saifetdinov A.R., 2018].

The next factor determining the genesis of innovation and investment policy in terms of technological transformation is the competitive advantage. Agricultural organizations that have the ability to not only produce products, but also process, transport and sell them in the full cycle of agricultural production have great competitive advantages. To increase the efficiency of crop production helps: the use of intensive technology for the cultivation of agricultural crops, reducing the time of field work, strengthening the technical base, reducing the cost of production, complex mechanization of work processes [Grudkina T.I., 2014].

However, it is important to note that the full cycle of agricultural production (production, processing, elaborating, storage, sale) to increase competitiveness can be provided by technical and technological modernization. Modernization involves the introduction of innovative and information technologies in the full production cycle.

Studies show that increasing the efficiency level of enterprise operations ensures the introduction of new competitive strategies. Sources of competitive advantage can be divided into low and high sources, which are ranked by the time they are used. The benefits of low rank include labor, raw materials, scale of production. The advantages of a high rank include the presence of patented technology, ensuring the unique properties of goods and services, the reputation of the manufacturer of the agricultural sector. Such advantages allow for continuous modernization of production based on the implementing of innovations [Asriyants K.G., 2013].

The relevance of the innovation and investment policy concept in ensuring the economic security of agricultural organizations is especially evident in the conditions of techno-economic modernization. Studies

Table 2. The proportion of innovative goods, works, services in the total volume of goods shipped, works and services performed in the Russian Federation, by types of economic activity for 2017.

Types of economic activities	OKVED2 code	2017 (%)
Total share of innovative products in the total volume of the Russian Federation:		7.2
Total share of innovative products of agricultural sector in the total volume of the Russian Federation:		2.1
The share of innovative products of the agricultural sector in the total volume of innovative products for all types of economic activity of the Russian Federation of which by the type of economic activity		29.9
annual crop cultivation	01.1	1.9
cultivation of perennial crops	01.2	3.1
seedling cultivation	01.3	21.4
livestock	01.4	1.7
mixed farming	01.5	-
auxiliary activities in the field of crop production and post-harvest processing of agricultural products	01.6	1.8
industrial production		6.7
water supply; water disposal, organization of waste collection and disposal, pollution elimination activities	E	1.1
roofing	43.91	0.5
other specialized construction works (not elsewhere classified)	43.99	0.1
publishing activities	58	0.2
telecommunications activities	61	4.4
computer software development, consulting services in this area and other related services	62	6.6
information technology activities	63	2.5
legal and accounting activities	69	0.6
activities of head offices; management consulting	70	0.1
activities in the field of architecture and engineering design; technical testing, research and analysis	71	2.3
research and development	72	43.1
advertising and market research	73	1.9
other professional scientific and technical activities	74	-
Total		100.0%
Source: Federal State Statistics Service (Rosstat) (2019) Electronic Resource http://www.gks.ru/wps/wcm/connect/rosstat_main/rosstat/ru/statistics/science_and_innovations/science/#		

show that the share of innovative products in the total volume of the Russian Federation is only 7%, which includes 29.9% of innovative products in the agricultural sector (table 2).

According to studies in 2017, the agricultural industry shipped 29.9% of innovative goods, works, services in the total volume of the Russian Federation (by type of economic activity).

These calculations were made on the basis of indicators of the annual form of federal statistical observation N 4-innovation "Information on the innovative activities of the organization", systematized according to the all-Russian classifier of types of economic activities (OKVED2 OK 029-2014). In 2017, the share of agricultural organizations in the total volume of innovative goods shipped, works performed, services in Russia and by type of economic activity is 2.1%, which in the conditions of the digital economy and Industry 4.0 is an indicator of a low level of economic and food security. A low level of investment activity of agricultural organizations can be seen in the analysis of the share of investments in fixed assets in agricultural forestry for 2014-2018 in Russia (in actual prices) (Table 3).

The analysis of the index of the physical volume of investments in fixed assets for the full range of economic entities (as a percentage of the previous year) reflects the low growth in investment activity in agriculture, forestry, hunting, fishing and fish farming (Table 4).

Therefore, innovations in agriculture should be introduced in all areas of activity. To verify the effectiveness it is necessary to assess the possibilities of future development and the risks that may appear in the implementation practice. Given the advantages (future development opportunities) and constraints (future risks), it is possible to activate innovative activity through an investment concept strategy that will allow financing the updating of obsolete models of agricultural production.

Innovation activity is connected with scientific and methodological activity in the agricultural sector and always contains a new solution to an urgent problem, leads to qualitative and quantitative changes in agricultural production, improves the quality of work in the structure of the agricultural industry.

The key goal of the investment concept-strategy for the development of innovative activities of agricultural organizations under the conditions of techno-economic

Table 3. The share of investments in fixed assets in agriculture, forestry, hunting, fishing and fish farming from the total volume of economic activities for 2014-2018 in Russia (in actual prices).

Types of economic activities	OKVED2 code	2014	2015	2016	2017	2018
billion rubles						
Total (in billion rubles)		13902.6	13897.2	14748.8	16027.3	17595.0
Out of it:						
agriculture, forestry, hunting, fishing and fish farming	A	524.3	518.8	623.4	705.5	777.0
plant growing and animal farming, hunting and provision of related services in these areas	01	492.5	483.6	582.6	651.4	707.7
forestry and logging	02	16.6	20.8	20.7	25.4	31.1
fishing and fish farming	03	15.2	14.4	20.1	28.7	38.2
as a percentage of the total						
Total		100.0	100.0	100.0	100.0	100.0
out of it:						
agriculture, forestry, hunting, fishing and fish farming	A	3.8	3.7	4.2	4.4	4.4
out of them:						
plant growing and animal farming, hunting and provision of related services in these areas	01	3.6	3.5	4.0	4.1	4.0
forestry and logging	02	0.1	0.1	0.1	0.1	0.2
fishing and fish farming	03	0.1	0.1	0.1	0.2	0.2
Source: Federal State Statistics Service (Rosstat) (2019) Electronic Resource http://www.gks.ru/wps/wcm/connect/rosstat_main/rosstat/ru/statistics/science_and_innovations/science/#						

Table 4. Index of physical volume of investments in fixed assets for a full range of business entities (in percentage terms from the previous year).

Types of economic activities	OKVED 2 code	2014	2015	2016	2017	2018
Total		98.5	89.9	99.8	104.8	104.3
out of it:						
agriculture, forestry, hunting, fishing and fish farming	A	92.4	87.9	112.5	109.7	105.5
out of them:						
plant growing and animal farming, hunting and provision of related services in these areas	01	92.7	87.4	113.1	108.2	104.1
forestry and logging	02	80.4	109.1	90.7	119.6	116.7
Source: Federal State Statistics Service (Rosstat) (2019) Electronic Resource http://www.gks.ru/wps/wcm/connect/rosstat_main/rosstat/ru/statistics/science_and_innovations/science/#						

modernization is to maximize the “disclosure” of the potential of natural opportunities in the process of agricultural production. Realization of innovative technologies in practice involves equipping and mastering innovative technical means and increasing the competence of labor resources.

Equipping with innovative technical means and increasing the competence of labor resources are the basis of investment modernization.

To solve the problems presented, it is necessary to introduce a set of actions deployed in time that are aimed at finding and implementing the most profitable innovations and investment solutions, which will allow

you to earn income in a specific investment environment. It is innovation and investment policy that involves the development, implementation and adaptation of active changes in the general, private and individual proportions of the system of social reproduction organized in stages at all its levels.

The genesis is justified by the key need to obtain competitive advantages, where agricultural organizations need the constant introduction of innovations. They will expand the range of agricultural products not only after the direct production process, but also as a processed and stored product with improved characteristics based on modern innovative technologies in terms of investment

support for consumer-oriented production. On the platform of innovation and investment policy competitive advantages should be ensured by increasing product quality, expanding the assortment, optimizing the production structure, improving the herd of animals and extensive use of marketing and advertising.

5 Effective part

Studies show that the formation and implementation of innovative investment policy is due to competition. The transition to a new level requires not just improving the facility, but its development through the use of new methods and principles. It indicates the importance of continuous improvement of our human resources by developing their potential and introducing innovations in the organization of the agricultural industry [Gladysheva A .L., 2014].

In innovation and investment policy it is important to take into account globalization, where the strategically important components of modern world markets become management innovations. To achieve a leading position in competition with other organizations, the activities of the enterprise are modernized by introducing concepts that activate human abilities and skills.

The development and implementation of innovation and investment policies should be handled by creative and competent staff. The human factor plays the main role here, since only those people who adequately relate to innovations and use them in their work can benefit the company. If the role of technology and innovation in the company is not defined and there are no conditions for demonstrating abilities and capabilities of the staff, in this case we can talk about the fact of incompetence [Taroyan V.M., 2015].

Innovation and investment policy includes three main units, which have their stages.

1. The block of organizational innovation.
2. The block of technological innovation.
3. The block of investment support for implementation of an innovation project.

1. The ontology of the organizational innovation block explores the essential definitions and impact on the creating of innovation and investment policy. Organizational innovations are presented as a direction for improving human capital through the implementation of measures that contribute to raising the level of scientific qualification of employees.

Organizational innovations are understood as: 1) any purposeful changes in the parameters of the organization that are positive and contribute to increasing the efficiency of the organization and its further development; 2) innovations in the field of management (organization decisions, changing the system, methods and procedures of management), which are used in the organization for the first time and differ significantly from established practice.

2. The essential concept of technological innovations reveals their ontology and level of influence on the formation of innovation and investment policy. In general terms, technological innovation is considered as

new or improved existing products manufactured using modern information technologies. This should include changing customer service technology and the use of modern technological equipment in order to increase the efficiency and competitiveness of the services provided [Dremina G.A., 2012; Rogachev A.F., 2015; Rogachev A.F., 2018].

The ontology of technological innovation presents new or substantially improved, as well as previously well-forgotten, not implemented in mass production earlier old techniques. These are adjusted in products or services based on significant investment of the final result in the innovation and investment policy.

3. The block of investment support for the implementation of an innovative project is based on the concept of innovative potential. The definition of "potential" in an expanded interpretation is presented as a source, opportunity, means, assets that can be involved in the process of solving a problem in order to achieve a specific strategy. Each agricultural enterprise that is going to introduce innovations should have investment potential. The investment activity of agricultural enterprises consists of implementing investments in the form of a project for: 1) increasing the company's own capital; 2) obtaining the effect of synergy from the development of specialized innovation and investment infrastructure; 3) increasing the image of the enterprise based on successful expansion of the commercial partners circle, which ensures the formation of financial flexibility.

It should be noted that the main essential concept of investment activity is the infusion of production resources combined with scientific and technological progress and consumer requests in order to implement technologies and developments that could remain in the form of drawings and layouts without receiving targeted funding or otherwise infusion [Melnikova Y.V., 2020; Shokhnekh A.V., 2020].

The ontology of the innovation and investment policy of agricultural organizations in the agro-industrial complex reveals the essence of the innovation and investment process as a merger of innovations and investments into a single unit. Innovative processes are presented there as organizational and technological innovations implemented on a fairly real scale on an investment platform. The investment activity platform provides the necessary production resources for mass distribution of the results of the investment project. Innovations in the form of a certain idea can exist as drawings, business plans, layouts, but their implementation is possible with the availability of investments of our own, attracted and combined infusion in any form like intellectual and physical labor or intangible and tangible investments.

6 Conclusion

In conclusion, it should be stated that the essential concept of innovation and investment policy of agricultural organizations in the agricultural sector is complemented by the disclosure of the level of risk that

can affect the investors' goal, which is to maximize profit while minimizing the cost of an innovative project. The transformation of the mechanisms for creating a favorable investment climate in Russia should go along such directions as:

- arranging financial mechanisms to support and attract investments from the state;
- creating conditions for a "favorable administrative environment for investment";
- reducing risks of state authority abuse in the control regime;
- organizational improving of infrastructure prepared for investment;
- creating of the staff support institute for innovative projects;
- stimulating of demand for products and services produced on the basis of innovation and investment projects.

Based on the investment climate analysis it can be stated that government policy plays a key role for potential investors. It's essential especially with regard to foreign investment, where the country's participation in international treaty systems and the risk of nationalization of foreign property, the level of government intervention in the economy and so on are evaluated.

Attracting investment in the agricultural industry requires ensuring the following conditions in innovation and investment policy:

- transparent and logical business plan;
- the presence of an ideal reputation of the investment object;
- financial statements of the company, confirming the high investment potential;
- management reporting, confirming the high innovative potential of the agricultural enterprise;
- stable, open and socially-oriented economic local policy due to state strategies;
- high or sufficient level of expected profitability of the innovation project;
- medium or short terms of the project realization;
- tax climate in the industry;
- the state of the insurance climate of the industry;
- inflation rate in the country;
- low or medium level of risk impact on the implementation process and then operation of the innovation project.

It means that it becomes significant to: improve the tax system, which should be aimed at lowering the tax burden; to fight against the "shadow" economy, appearing in dumping prices as a form of unfair competition; to reduce the key interest rate on loans; to provide comfortable conditions for unprofitable enterprises with the aim of preserving them and further reviving.

Studies show that the level of investment attractiveness is the main indicator of the investment and innovation activity of the territories of Russia, where the social and economic development is effective for regions and the state, as well as for private agriculture. The most important task is to create the necessary conditions for investment affecting the preferences of the potential

investor in choosing a particular investment project. It is obvious that any investor will try to determine the most effective investment project. The success of such project should be most probable, the conditions for implementation should have low risks and the payback period has to be short. It is unreasonable to support and finance unprofitable organizations, as well as newly created organizations, whose products are not recognized as competitive in comparison with similar goods. Theoretical study allows us to conclude that investment processes in Russia are characterized by instability of investments.

Therefore, investment is one of the main factors contributing to the improvement of the economy as well as the growth of production because they create a favorable economic and tax climate. Today, the economy needs to implement various investment projects, but at the same time this is complicated by low economic, financial, and organizational indicators of investment objects. First of all, such indicators include a system of tax measures aimed at enhancing investment activity, as well as the development of innovative technologies in the economy.

For newly created investment projects tax holidays should be provided. The existing problem of enhancing investment activity in the Russian Federation can be successfully resolved by developing its own and most effective investment policy, as well as implementing adequate measures and actions in the research area. Increasing investment attractiveness based on innovative methods at first is supposed to be done by amending the current legislation, developing a system of benefits, and providing guarantees from the state. The state's participation in financing investment projects is important, which in turn involves the use of various mechanisms of economic regulation. It is required to create a favorable tax climate that will maximize the attraction of investment in the economy.

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