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THE INNOVATION POLICY OF AN AGRICULTURAL
ORGANIZATION IN THE ECONOMIC SECURITY SYSTEM

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Abstract

The article develops the structure of the “economic security” concept at the micro-, meso- and macro-levels. It provides an analysis of the process of ensuring strategic economic security and its differences from tactical economic security. The role of investment policy and implementation of innovations as a stimulator of the socio-economic activity of an agricultural organization is also studied in the article. The existing investment gaps in the agricultural sector are clearly demonstrated and there are recommendations given for identifying the role impact of investment innovations in the strategic economic security system. The economic security of agricultural enterprises is a criterion for the reliability of their partnership in business and the ability to provide processing enterprises with raw materials, and the population with food products. Tactics is an integral part of the economic security strategy and is implemented through specific methods of achieving a particular level of strategic security. Tactical features are flexible and can change quickly, choosing the most profitable and effective option to perform the task in certain conditions.

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1. Introduction

The essential components of the next round of innovation and investment trends in the economy are a sign of pre-crisis phenomena. Both innovative processes and investment design are the answer to the crisis phenomena reality. If stagnation and inhibition cannot be avoided, they can smooth out these processes, making them less painful for the economic situation, development of socio-economic systems and society as a whole.

It's highly important to answer the question: how to predict the first signs of pre-crisis phenomena, in order to completely smooth out the destructive effects of the crisis or try to prevent it altogether.

One way or another, stability in the economy of a country, a region and an enterprise is a sign of economic security at various levels. Economic levels are interconnected, interdependent, and its investment processes with innovative modernization of production and processing form a foundation, providing a state of stability of the economic system as a whole.

2. Discussions

One of the most important tasks of ensuring economic security is the formation and strengthening of the position of the state on the international global economic arena. At the same time, this status and position has the best effect on internal stabilization and strengthening of the economic security. This process is dual, interdependent and pervasive in all spheres of economics both within the state and beyond (Gerashchenkova, 2014; Gerasina et al., 2011; Melnikova & Shokhnekh, 2020; Salomatin, 2011).

Economic security as a phenomenon has a complex structure, the constituent elements of which are designed to ensure economic stability, sustainability, stable development of the economy within the state, as well as a desire for innovative and investment processes.

The term “economic security” was first introduced by Franklin Roosevelt when searching for ways out of the economic crisis in the USA in the 1930s. Academician L.I. Abalkin worked on a more detailed definition, marking economic security as “a combination of conditions and factors ensuring the independence of the national economy, its stability, sustainability and the ability to constantly update and improve” (Melnikova & Shokhnekh, 2020, pp. 809-816). According to the expert, the essential role is played by the independent choice of tax, monetary and foreign policy. For a rather long period of time the term “security” in this context has almost been identical to the term “independence,” but over time and with the development of global economic management, the independence of an individual state in economic terms is now considered very conditional. If we are talking about Russia specifically, there is a concept of “oil needle” and “commodity economy” which shows that the independence of the Russian economy ends exactly where the decline in world energy prices begins.

Interests. Savin (1995) explains the term economic security:

Economic security is a system for protecting the vital interests of Russia. Under protection may be the national economy of the country as a whole, certain regions of the country, certain spheres and branches of the economy, legal entities and individuals as subjects of economic activity (p.14).

Thus, it is practically impossible to protect the entire economic interests under the condition of constant competition between the compared units. For the same reason, it is difficult to determine the components of the list of “vital interests” from the very beginning. So, the task of achieving absolute protection of the most important economic interests seems complicated and complex, since sometimes the opposite interests of the individual, society and the state coexist in a proper way.

It’s now essential to study a concept of economic security at the macro level, which is a position of the state in terms of economic security in the global arena. In this aspect, the key features of an economic security strategy are the protection of national interests from internal and external threats. It is provided by the necessary forces, means and institutions within the state due to the steadily developing production, management, tax, financial, business, trade and intermediary structures, including law enforcement agencies and ministries.

Stability of economic security at the macro level mostly depends on its internal components. Under the structural components related to the internal stabilizers of economic security at the macro level, we can attribute economic stability to enterprises, industries and farms, departments and even households. Each structural element of that kind should have economic security at the micro level. It means being in a state of the most efficient use of corporate resources and benefits with the goal of stable functioning and prevention of threats of a financial, social, human, technological, managerial, environmental, informational nature now and for a strategic perspective.

3. The research part

It is recently common to single out another level of structuring the economy - the meso level, or the level of the region. In our opinion, economic security at the mesoscale is a kind of layer between the stability of individual industries and enterprises and the state of “protected satisfaction” of the state in the international economic arena (Figure 1).

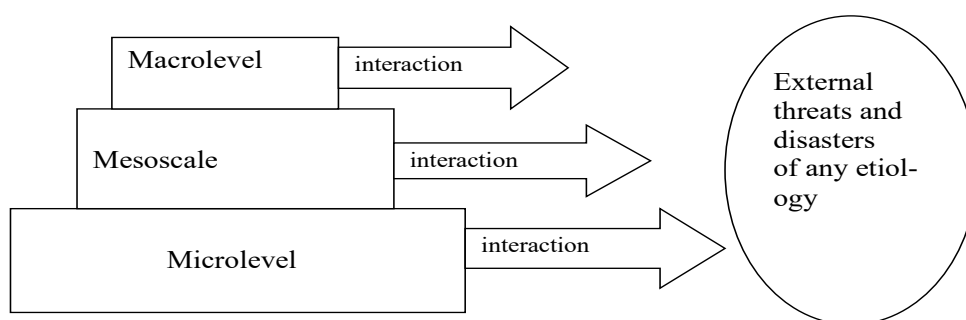


Figure 1. The structure of components of economic security (Source: compiled by authors)

As it can be seen from the presented diagram, all three levels of economic security are inextricably linked and interact not only between each other's components, but also actively resist external threats that can disrupt the integrity of the system and lower the level of economic security at one of the levels. The higher the security level of the three components of the system, the more resistant to external threats the system is.

4. Materials and methods

To test the proposed hypothesis, statistical analysis and synthesis of ontological approaches to innovation and investment policy are used.

In the era of global farming, global resistance to crisis threats, pandemics and natural disasters, there is an opinion about another level of economic security - a global level that unites a number of states with similar interests, a set of resources, and the level of development in the face of a common external threat. Stability of economic security at the global level is achieved through political, banking, scientific cooperation and is designed to solve its individual problems in favor of a common cause. The stability of the macro level of economic security is one of the steps towards a global unity of capital, research, power and personnel structures to further strengthen our interests.

The process of ensuring the level of economic security at any stage of formation and regardless of scale is the primary task of management and production. Long-term economic security in general is also called strategic. In our opinion, this is not a totally correct definition. There is an interpretation of the concept of "strategy". According to many experts, the strategy in a certain context is a comprehensive complex plan designed to fulfill the mission and goals in the long term. The time frame for implementation of this complex plan depends on the comprehensive and overwhelming nature and the long-term existing goals. For example, the applied character of strategic economic security can be described as providing all-season food supplies to the entire population of the Russian Federation, or exporting grain being in the top three world exporters and staying there, providing this type of raw material to most buying countries. Differences between strategy and tactics can be shown in its simplest form. Tactics is an integral component of the strategy, each implemented item of the strategic plan that can change under the influence of the external environment.

Economic security implies the country's technological, resource, defense independence and in the future it will be largely dependent on scientific and technological potential and innovative developments. Rapid and steady economic growth requires a multiple increase in investment and innovative activity, which means capital investment in system forming strategic sectors.

Investment is a long-term capital input in certain sectors of the economy domestically and abroad. It includes cash, securities, other property, including property rights, other rights having a monetary value. It can be stated that investment is a rejection of cash today in favor of earning income in the future.

Investments are divided into direct (direct investment in business development, equipment, personnel) and portfolio (purchase of securities on the stock market). Direct investment is 1/3 of the total, and the remaining 2/3 is portfolio. The effectiveness of investment injections can be assessed only when the level of GDP due to investment projects begins to grow steadily and tirelessly year by year, as we can see from the example of China.

In terms of market economy, public demand for innovations is manifested as ordinary affordable demand for them. The significance of industrial investments lies in the fact that they increase labor productivity and by creating a better product allow the company to excel in the competition. (Figure 2).

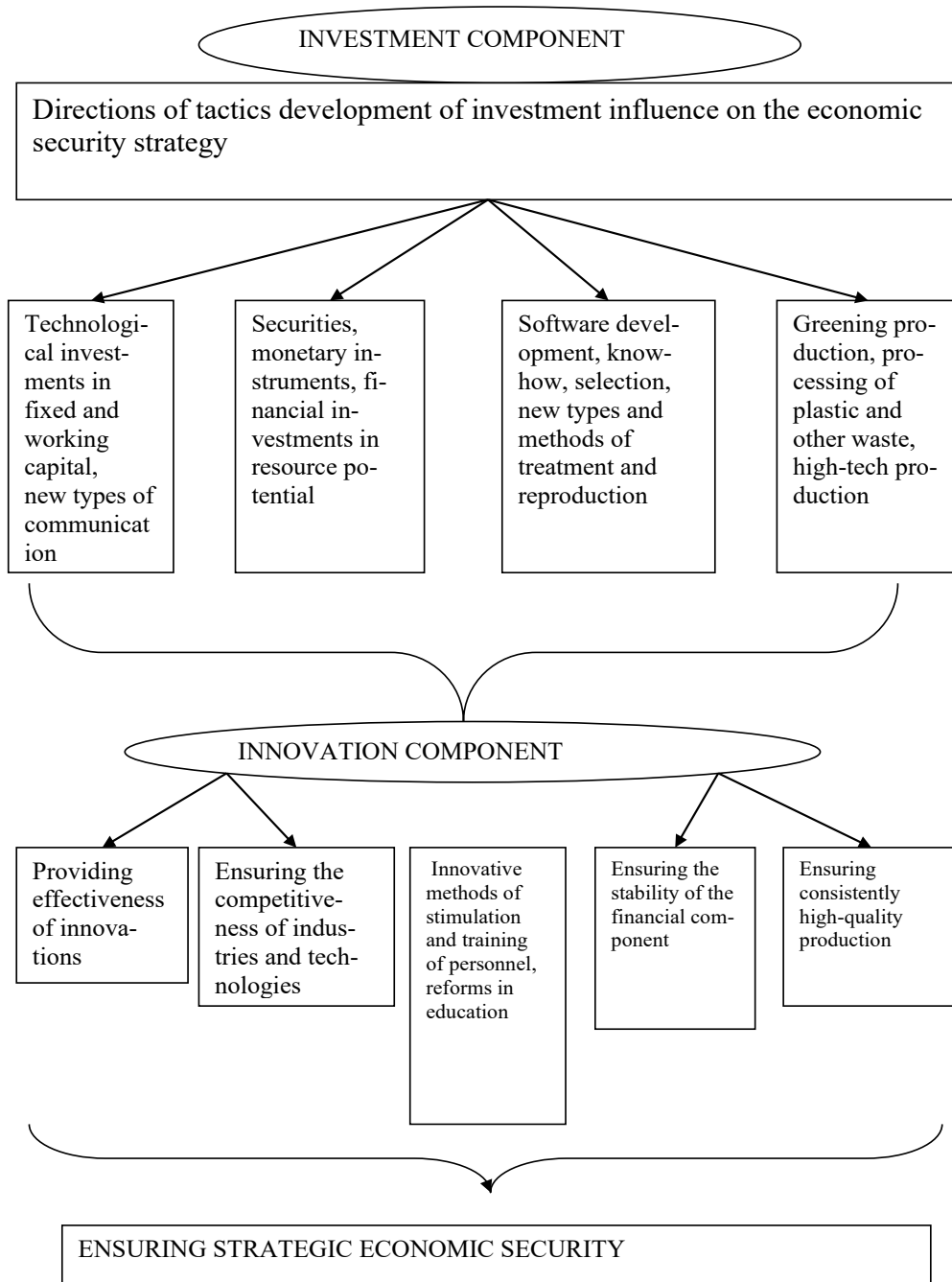


Figure 2. The system of innovation and investment development in the context of economic security
 (Source: compiled by the authors)

Thus, based on the figure, it can be seen that only the simultaneous adaptation of investment and innovative approaches will lead to a stable state of the economic system and to the stable implementation of the economic security strategy.

In Russia, enterprises lack funds for innovative development because there is little demand for their products. In order to produce products that will be in great demand, there is a need for modernization of production, which implies huge financial investments.

The problem of economic security is a competent strategy for combining investment and innovation policies. The competitiveness of a country and its place in the world economy depends on the successful

implementation of innovation policy. Overcoming the lag in the latest scientific developments and technologies is one of the fundamental goals of the national economic security strategy of Russia.

It is possible to combine the concepts of economic security at various levels into one, speaking about stability in the compliance of national interests, GDP growth and a certain high level of satisfaction of society with the economic policy and the level of employment. The particular structure of economic security at all times cannot be imagined without a serious production cluster, as the only type of entrepreneurship that forms an additional product (Alpysbaev, 2018; Botashev & Shokhnekh, 2013; Klimova, 2012; Rogachev et al., 2018). In times of crisis, those areas that help strengthen and stabilize economic security at the micro and meso level come first, ensuring a stable level of economic security. Consisting components were partially listed by us above, now we will try to structure them (Figure 3).

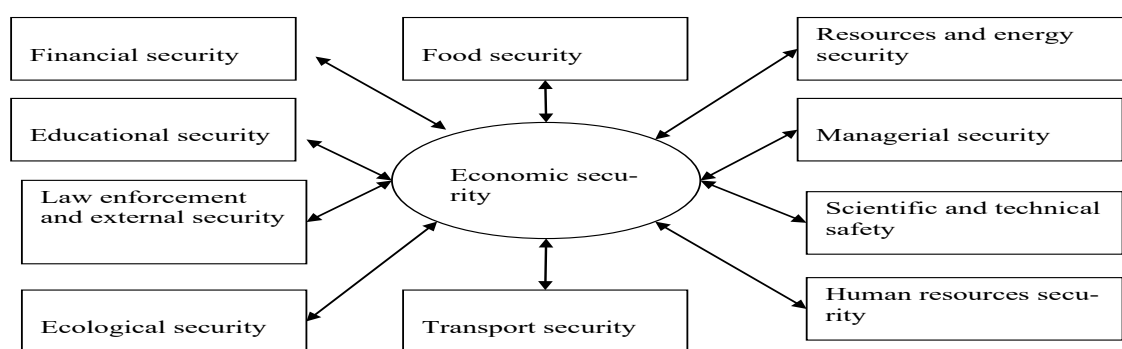


Figure 3. Components of state economic security (Source: compiled by the authors)

As can be seen from the diagram, the key positions in ensuring the strategic level of economic security are occupied by financial, food and resource-technical security types. It is especially important for our state during the crisis, taking into account natural resources and climatic features.

It's essential to focus on the component of state food security, since it is the stable position of the agricultural sector and the development of agricultural organizations that reflect the security of this sector and ensure the availability of high-quality food for the population. The situation that has arisen in the agro-industrial complex of Russia (the constant increase in prices for fuels and lubricants, insufficient financing of agriculture, the instability of the economic and political situation in the state) creates a system of threats to agricultural enterprises in the form of loss of profit and financial independence. In general, such threats have the nature of external influences that are difficult to eliminate only by the forces of agricultural producers (Bereza, 2019).

Economic security of agricultural enterprises at the national level is determined by the regulation of prices and tariffs, state support for producers due to the introduction of a special taxes regime for agricultural enterprises, subsidies, soft loans, preferential insurance conditions, provided by state leasing of agricultural machinery, certification of products, restriction of imports of agricultural products by tariff and non-tariff measures. The economic security of agricultural enterprises at the regional level involves adoption of regional programs for development of production and consumption of agricultural products. Such programs include financial support for agricultural producers using the funds of the regional budget, regulation of harmful emissions, monitoring the state of the environment in which the production of

agricultural products takes place, creation of industrial infrastructure and compensation for the costs of maintaining social infrastructure.

The industry level provides for creating of associations of producers, forming of horizontal and vertical integration structures, preventing of abuse of monopoly power in agricultural markets by traders and suppliers of equipment, materials and services (Shokhnekh et al., 2020; Svetlanov, 2014). Official data from the state statistics service make it possible to say that the percentage of the employed population in agriculture has negative dynamics. Since 1990, indicators have fallen by 3.5%. At the same time, over the past 5 years, not only Russia's large labor resources have been used, but also there has been noticed a significant increase in the gross agricultural output.

In fact, in comparison with other sectors of the national economy, agriculture suffered less from the impact of the global financial crisis of 2008 and from the sanctions of 2014. Also, it is worth paying attention to investment in fixed assets. With a decrease of investment in agriculture, it's evident that unemployment of rural workers takes place, which naturally leads to a lower income. In the future, with a subsequent decrease in investment in agriculture, there will be a negative impact on industries that are related to the supply of materials and equipment for agriculture. In the system of investment in fixed assets, agriculture accounts for approximately 3.3%. The largest share is observed in 1992. This means that investment interest in Russian agriculture decreased every year, which affected the volume of investment in the industry overall. In addition, scientific and technological development has caused particularly attractive areas for investment, which did not include agriculture. Thus, investment gaps in this area are identified and can be combined into the following categories:

- lack of replenishment of logistics base, machinery, equipment and high credit and administrative obstacles for updating obsolete technical means;
- human resources (problems of rural employment and the dominance of foreign low-skilled and low-paid labor force); the prestige of the profession of an agronomist, a farmer loses its relevance, the number of labor force in agricultural area decreases;
- low level of the latest technologies and developments in this industry (minimal digitalization coverage);
- low availability of resources, seeds, veterinary preparations, pest control measures, fertilizers etc.

It is worth to consider as an example one of the main indicators for the agricultural sector - the provision of agricultural organizations with tractors and combines (Table 1).

Table 1. Stages of testing the model for ensuring strategic economic security of innovation and investment policy of agro-industrial organizations

Provision of agricultural organizations with tractors and combines	2004	2008 ³⁾	2014	2018	2019
Accounts for tractors on 1000 ha of arable land	6	5	3	3	3
Arable land load per tractor, ha	169	210	290	337	345
It accounts for 1000 ha of crops (planting) of the respective crops, pcs .:					
Harvesters					
Grain	4	3	2	2	2
Corn	5	1	0,0	0,0	0,0
Potato	33	23	17	15	15
Flax	21	19	16	11	10
Beetroot harvesting machines (without toppers)	11	6	3	2	2

Accounts for crops (planting) of the respective crops, ha: per harvester					
Grain	236	317	408	424	437
Corn	211	846	2362	2366	2772
Potato	30	43	58	68	68
Flax	48	54	64	89	100
Beetroot harvesting machine (without toppers)	88	156	337	456	478

Source: compiled by the authors based on the data of the following website - gsk.ru

The table shows that the number of expensive and necessary in the agricultural sector equipment has been steadily decreasing since 2004, with the exception of beet harvesters (it's vital to recall that the Russian Federation is a leader in the export of sugar beets).

Thus, the first and key task of the investment policy in the agricultural sector today is to create conditions for agricultural producers to purchase agricultural equipment so that it is not financially difficult and reduce the extensive load of existing equipment and agricultural land.

In the table 2 the share of crop production in the structure of agricultural production in the districts of the Russian Federation is clearly presented.

Table 2. Stages of testing the model for ensuring strategic economic security of innovation and investment policy of agro-industrial organizations

	Households of all categories	Agricultural organizations	Households of the population	Farmers' (peasants') Households, Individual entrepreneurs
The share of crop products in agricultural products in 2019				
RUSSIAN FEDERATION	53.5	50.3	46.8	80.9
Central Federal District	53.6	47.9	61.8	88.2
Northwestern Federal District	30.8	17.1	72.6	60.8
South Federal District	72.0	79.0	41.8	89.4
Republic of Adygea	66.8	65.7	47.4	89.2
Republic of Kalmykia	22.9	63.8	0.9	39.2
Republic of Crimea	57.8	58.3	43.5	88.8
Krasnodar region	74.3	75.7	44.9	95.2
Astrakhan region	58.4	67.9	35.2	75.4
Volgograd region	70.6	81.7	41.8	91.8
Rostov region	78.9	90.1	45.8	92.2
Stavropol	89.4	96.0	84.3	6.6
North Caucasus Federal District	56.1	70.2	40.8	62.1
Volga Federal District	50.0	45.4	46.1	78.5
Ural Federal District	40.6	29.5	48.6	77.2
Siberian Federal District	45.8	43.5	33.9	78.6
Far Eastern Federal District	48.9	54.9	40.8	61.7

Source: compiled by the authors based on the data of the following website - gsk.ru

It can be noted that the economic structure in the agricultural sector is quite stable despite the climatic differences and weather conditions - in most of the districts the share of crop production in production of agricultural organizations is from 60% and above. That is the "investment audience" and innovative processes in it will help not only hold these positions, but also increase its volume. The imported crop products from the Russian market can be displaced with the ones that Russian agricultural producers

can grow themselves. The exceptions are citrus fruits, bananas, tea, coffee, cocoa, exotic fruits, etc. Those products cannot grow on our territory, but are in high demand among the population and are included in the consumer basket.

Adult consumption rates are behind the recommendations of the Ministry of Health and consumption standards in the USSR. It is necessary to strengthen the role of the innovation and investment policy in the field of agriculture, so that the products in the consumer basket become more accessible to the population and their consumption standards are closer to the regulators in order to maintain food security.

At the current pace of development of the agricultural sector, only an innovative approach, armed with information and efficiency will allow us to achieve competitive results. A new concept of agricultural scouting is emerging. This type of activity allows you to strengthen control over the condition of the fields by accumulating an archive of data on the condition of each land plot: methods of soil treatment, quantities and types of fertilizers and plant protection products applied, periods of occurrence of certain pests for each crop in a particular cultivated region with its typical climatic and landscape features.

5. Effective part

This approach has existed abroad for over 10 years. As a result of agricultural scouting, the accumulated data was published in the form of calendars of the diseases occurrence by crop for certain regions, samples of forms for recording inspections of fields, and pest photograph based guides were published. Such an accumulated data array allows us to speak at least about stable control of the crop, as well as about the prospects for its growth.

Let us single out several functions of agricultural scouting:

- quality control of work performed (soil treatment, irrigation, harvesting, etc.)
- determination of the state of crops (stages of vegetation, activity, health, the presence of diseases and pests)
- development of technical specifications for field processing.

The introduction of agricultural scouting in Russia began back in 2010 by the Group of Companies AgroTerra. Over 10 years of work there was a growth of 10 times the volume of production space. To improve the performance of an already large company, it's imported to systemize processes. This work was launched in 2014, and the introduction of lean manufacturing proved itself as an important task in improving operational efficiency.

1. A global audit of the processes was carried out, tools were selected for their optimization.
2. It was decided to describe the work in the field, taking into account the best practices for achieving efficiency in the agricultural market.
3. A working expert group was assembled, which developed a standard for the new "agricultural scout" position and field work instructions.
4. Finished materials were introduced into the work of the company.

The company launched a new profession "agrosout" in order to make production more predictable - to receive crops of the planned quality and volume regardless of natural factors. Two years have passed since the testing of the new position until its implementation. Today agricultural scouting is a full-fledged division of AgroTerra. Agrosouts use the standards and job descriptions developed by the company, as

well as modern IT programs and devices, to analyze the development of cultures at all stages and timely inform the production unit about errors.

Agroscouts daily examine the cultivated area in 7 regions of presence. Each agricultural scout manages about 10,000 hectares. In 2016 new specialists conducted 26,000 audits, developed 3,000 recommendations with corrective actions and helped the company increase productivity by 15%.

6. Conclusion

So, in general, this innovation has not yet found wide application in the Russian Federation, but it is already possible to highlight the advantages and disadvantages of this profession and technology. The benefits include:

1. Mobility - using mobile applications, special programs on a PC, allows to see the status of plantations online;
2. It has become easier to diagnose fields;
3. The most accurate forecasts for the harvest;
4. Increase in sown fields – it has become easier to track the condition of sown areas;
5. Emergence of new jobs with the advent of the new profession “agroscout”;
6. Improved product quality and increased crop volumes;
7. Efficiency of entering information on the condition of crops.

The disadvantages include the fact that huge financial investments are required.

It is necessary to collect agronomic information in a single space, as well as further processing of these data (numbers, indicators) into an accessible analytical form of data presentation. The agricultural analyst should have free access to long-term data on crops, harvests, crops, as well as agrochemical indicators, weather conditions and field maps. Existing and accumulated statistics in the form of analytics should be available for each branch, field, culture and other levels of analysis. So, the implementation of agricultural scouting is possible. In order to do this there is a need for a new approach to organize the storage of agronomic information, due to the fact that the data should be regularly "flocked" to the storage and should be available for downloading at any time.

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