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ECONOMIC SCIENCES

ENVIRONMENTAL MANAGEMENT IN THE STRUCTURE OF AGRICULTURAL ENTERPRISES WITH A POST-INDUSTRIAL MANAGEMENT SYSTEM

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Abstract

The post-industrial direction of state development requires changes in the approach to the organization of the production process and the management system of all enterprises, including agricultural enterprises. Elements of digitalization, which have penetrated all areas of economic activity in all sectors of the economy, have a direct impact on the technological process and methods of managing it. The technologies of agricultural production have also changed due to modern methods of organizing the production process and the use of innovative resource-saving energy-saving technologies and technical means by agricultural enterprises. In addition, the change in the field of information exchange has facilitated the transition to the ability to fully control the phased implementation of technological operations online 24/7 with the ability to remotely control processes and monitor their implementation. The possibility of providing a wide range of services by specialized structures helps to reduce the unit cost of production, due to the quality of the tasks and the constant updating of technical means of their implementation. Management decisions, thanks to the use of automated management systems, became possible with the minimization of risks on the basis of: available current operational data on the state of the enterprise at present; information on market interest and existing demand for a specific product and with the possibility of access to developed scientifically sound technologies adapted to a specific group of enterprises. All this can be realized only if the management staff is aware of working with the appropriate tools and in close cooperation with the relevant institutions. A necessary element of the functioning of enterprises in the field of innovative technologies is the implementation of conditions for the implementation of state policy. The Government of Ukraine has decided to implement the initiatives of the World Joint Committee, and has developed its own development strategy, taking into account its main directions. One of the directions implemented by our State is the implementation of the Sustainable Development Goals. In addition to the implementation of objectives in the direction of creating a stable infrastructure, promoting all-round and stable industrialization and innovation, An important goal is to ensure the transition to rational models of consumption and production and to modernize the means of implementation and active work within the framework of a global partnership in the interests of sustainable development. This approach will contribute to the formation of a postindustrial economy focused on the realization of the goals of sustainable development. In order to realize such an ambitious initiative, it is necessary to change not only the technical means, tools and technologies for achieving the expected results, but also one's own worldliness. One of the tools for implementing the goals of old development is the implementation of environmental management and quality management in the overall system of enterprise management. Formation of integrated management systems along with the use of modern tools for their implementation require a change in the very structure of relations between the elements of such a system. Since the activity of agricultural enterprises involves interaction of a significant number of structural units, it is appropriate to use elements of both vertical and horizontal integration. Due to this hybrid structure of interrelations between the participants, the hybrid system of management of the association is formed. For the purpose of implementing the Objectives of sustainable development in terms of ensuring openness, safety, livability and environmental sustainability of cities and other settlements (Goal 11), an important point is the inclusion of activities of households in a general closed production process. Such a structure of relations oriented towards joint implementation of the specified goal will be effective in organizing cooperation in the form of a cluster. To manage such a large-profile association, it is necessary to form a unified database. However, such a database requires the distribution of access to information and its limitation based on hierarchical level of management. Today, these features provide modern complex software products, type BASE ERP, which serve as business automation systems. We recommend adapting this software product in the management of agricultural enterprises.

Keywords: Integrated Management System, Agriculture, environmental management, digitization, quality management system, management tools.

High level of competitive struggle of enterprises on the market urges to search for innovative methods of management and tools, which will contribute to selection of optimal solution with maximal effects. Ukraine

works in the direction of active participation in the solution of problems of global scale, following the projects and programs developed by the world consortia. UNDP's state development strategy is based on the Global Development Goals (or «Global Goals») [1].

They were adopted unanimously by the General Assembly of the United Nations Organization and presented in Resolution 70/1 «Transforming Our World: The Order of the 21st Century to 2030» of 25th December 2015. The 17 Targets of the old development were formed, which became valid in December 2016 and are

the basis of the development strategy of 170 countries [2], including Ukraine. The formed Goals became the basis of the development policy developed by UNDP (the UN development agency) and the direction of financing of projects and programs of their implementation during the whole period up to 2030.

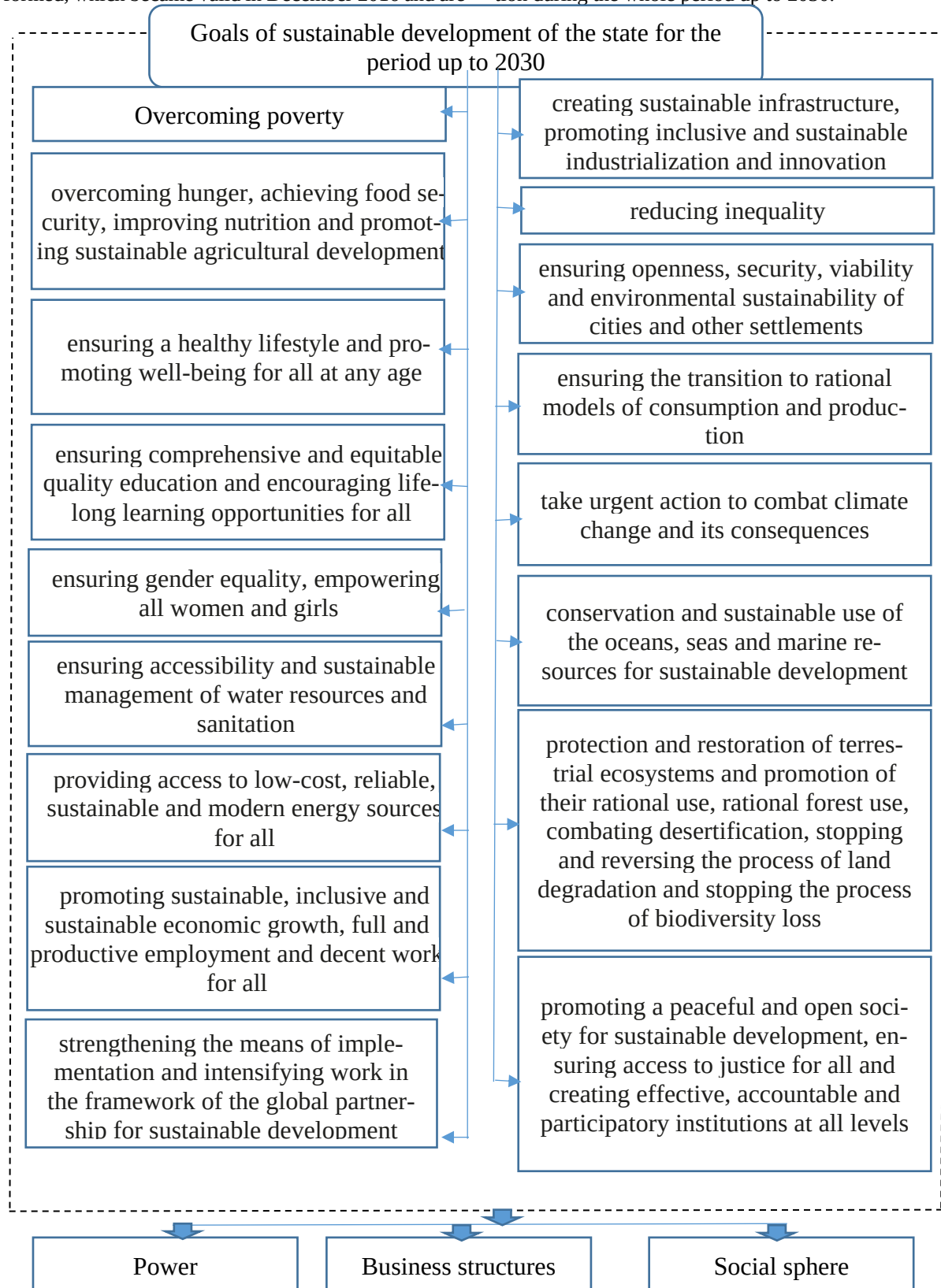


Fig. 1. Goals of sustainable development in the system of interaction with the state, business and social sphere

Developed 17 Goals of sustainable development, which is a new approach to the policy of development of the member states (Fig. 1).

The implementation of the goals of the old development is aimed not only at solving the problem of climatic changes, but also at solving the problems associated with economic nervousness, widespread innovation, re-orienting the society to steel consumption, the development of relations in the direction of peaceful coexistence and fairness. All of these goals are interdependent, because they are the only key to success. Integration of the old development goals into the development policy of states, including Ukraine, requires their implementation through the expansion of partnership and pragmatism between three vectors of economic entities: the state, business structures and the social sphere. Such cooperation is aimed at making the right choice in terms of stable improvement of the quality of life for the future generations. Therefore, when deciding on the implementation of the goals of sustainable development at the level of the state, it was necessary to form clear guidelines and adherence to the goals at all hierarchical levels, which include them in their own policies of development, based on their own and global priorities.

The goals of old development are characterized by the complexity of assessments and have an undifferentiated nature. The totality of calculated indicators is a linking element of the three dimensions of the old development: economic, environmental and

social.

Figure 1.1. we present the main directions of the goals of the sustainable development of the state.

Ukraine accepted the conditions for participating in the implementation of the UN plan on the sphere of "Global Goals." Therefore, the State Statistics Service of Ukraine together with VoxUkraine with the support of the UN Development Program in Ukraine.

VoxUkraine [3] Acts as an independent and non-engaged analytical platform that supports economic reforms in Ukraine by conducting analytical studies in the field of:

- meeting the conditions of economic policy,
- Independent assessment of economic transformation,
- Monitoring the implementation of the main points of the Global Goals,
- Exploring the possibilities of Ukraine's integration into the global network through economists and political leaders.

The founders and leaders of the VoxUkraine are experienced and highly qualified economists and lawyers working both in Ukraine and abroad.

VoxUkraine constantly carries out the assessment of progress of achievement of Sustainable development goals by Ukraine on a basis судьб in the form of the Voluntary national review concerning Sustainable development goals (<https://me.gov.ua>) [5] on methodology of the United Nations Economic and Social Commission for Asia and the Pacific (UNESCAP) which is according to the reference: <https://data.unescap.org>.

Table 1

Dynamics of implementation of sustainable development goals in terms of the task «Ensure the availability of quality services for the supply of safe drinking water, construction and reconstruction of centralized drinking water supply systems using the latest technologies and equipment»

Indicator	2015	2016	2017	2018	2019	Plan until 2020
Safety and quality of drinking water according to microbiological indicators (% of non-standard samples)						
by type of water supply						
urban area	3,1	4,3	4,6	5,1	5,7	-
countryside	7,6	10,4	11,2	11,8	11,4	-
by type of water supply						
centralized	4,6	6,4	6,7	7,7	8,2	-
decentralized	18,0	23,1	20,4	23,4	24,6	-
Safety and quality of drinking water according to radiation indicators (by% of non - standard samples)						
by type of water supply						
urban area	1,6	1,1	4,3	4,0	4,1	-
countryside	0,0	0,5	6,6	9,8	12,5	-
by type of water supply						
centralized	1,1	1,1	3,9	4,0	4,6	-
decentralized	1,7	0,4	3,0	2,5	4,0	-
Safety and quality of drinking water by organoleptic, physicochemical and sanitary-toxicological indicators (% of non-standard samples)						
the type locality of residence						
urban area	12,4	13,7	16,2	18,5	17,2	-
countryside	22,5	25,5	27,4	29,8	31,2	-
by type of water supply						
centralized	15,7	18,4	20,0	22,7	22,3	-
The share of the rural population that has access to centralized water supply, %	25,0	29,0	30,0	30,1	25,0	20
Share of urban population with access to centralized water supply,%	99,0	99,0	99,3	99,2	99,0	90

Source: Generalized by the author based on [12]

The following were involved in the development of the Voluntary Survey of Sustainable Development Goals:

- Representatives of the central executive authorities,
- Representatives of United Nations agencies in Ukraine,
- Representatives of the National Academy of Sciences of Ukraine,
- representatives of scientific institutions,
- representatives of public organizations,
- business representatives, especially those business entities that are parties to the UN Global Compact in Ukraine.

Analytical assessment of compliance with sustainable development goals was conducted for 110 national indicators of Sustainable Development Goals out of 183, approved by the order of the Cabinet of Ministers of Ukraine dated 21.08.2019 from 686 «Data collection issues for monitoring the implementation of sustainable development goals» [4], and for which targets for 2030.

Based on the task of ensuring the availability of quality services in terms of safe drinking water supply and in terms of construction and reconstruction of centralized drinking water supply systems using the latest technologies and equipment, we noted a positive direction of change. Taking into account the planned indicators of the share of the rural population that has access to centralized water supply as of 2020 - 20%, it

should be noted that in 2019 this figure was 25.0%. Similarly, the value of the share of urban population that has access to centralized water supply is higher than planned. The target value of this indicator for 2020 is 90%, however, in 2019 it was 99.0% (Table 1).

To achieve the goals of sustainable development for the period up to 2030, it is necessary to perform the relevant tasks. Thus, in terms of fulfilling goal 6 «Clean water and proper sanitation» the tasks are:

- Ensure the availability of quality services for the supply of safe drinking water, construction and reconstruction of centralized drinking water supply systems using the latest technologies and equipment;
- Ensure the availability of modern drainage systems, construction and reconstruction of water intake and sewage treatment plants using the latest technologies and equipment;
- Reduce discharges of untreated wastewater, primarily through the use of innovative water treatment technologies at the state and individual levels;
- Increase water efficiency.

It should be noted that an important task of the state is to increase the level of availability of modern drainage systems, and to carry out the construction and reconstruction of water intake and sewage treatment plants using the latest technologies and equipment. To assess the actions aimed at fulfilling this task, the share of rural and urban population that has access to centralized drainage systems, expressed in relative terms, is determined..

Table 2

Dynamics of implementation of sustainable development goals in terms of fulfilling the task of ensuring the availability of modern drainage systems, construction and reconstruction of water intake and sewage treatment plants using the latest technologies and equipment

Indicator	Years				Plan until 2020
	2015	2016	2017	2018	
Share of rural population with access to centralized drainage systems,%	3,0	2,2	2,5	2,5	-
Share of urban population with access to centralized drainage systems,%	92,0	94,0	95,0	96,1	90

Assessing the share of urban population that has access to centralized drainage systems in the dynamics over the years, it should be noted that during the analyzed period (2015-2018) its value increased by 4%, which is a positive direction of change. At the same time, the target set for 2020 is 90%. The analysis of this indicator shows the fulfillment of the conditions of the goals of sustainable development of the state in terms of the defined task.

One of the most difficult and capital-intensive tasks in terms of achieving the goal of sustainable development №6 « Clean water and proper sanitation » is to reduce the discharge of untreated wastewater, primarily through the use of innovative water treatment technologies at the state and individual levels. Indicators of this task are the assessment of the volume of discharges of contaminated (contaminated without treatment and insufficiently treated) wastewater into water bodies.

Evaluation of these indicators indicates the implementation of a significant number of measures

and actions in the direction of the tasks (Table 3).

The efficiency of water use testifies not only to the ecological orientation of business processes, but also, first of all, to their economic efficiency. Because the reduction in the quantity and cost of a resource per unit of output leads to a reduction in production costs and increase the economic result.

For example, assessing the dynamics of water capacity of GDP, we noted quite clear plans in the system of assessing the implementation of state environmental policy of Ukraine until 2030, which are recognized at the legislative level and presented in the Law of Ukraine «On Basic Principles (Strategy) of State Environmental Policy of Ukraine until 2030» [5].

If, in 2015, the level of water use per 1000 UAH of GDP (in actual prices) was 23.85, then in 2019 the value of this indicator decreased to 10.3 m³ of used water per 1000 UAH of GDP, which more than doubled the actual level of water capacity GDP to the projected target values of the State Strategy (Fig. 2).

Table 3

Dynamics of untreated wastewater discharges and water use efficiency in Ukraine (2015-2019)

Task	Indicator	Years					Target benchmark for 2020
		2015	2016	2017	2018	2019	
Reduce discharges of untreated wastewater, primarily through the use of innovative water treatment technologies at the state and individual levels	Volumes of discharges of polluted (polluted without treatment and insufficiently treated) wastewater into water bodies, million cubic meters. m	875,1	698,3	997,3	952,0	737,2	725,0
	Share of discharges of polluted (polluted without treatment and insufficiently treated) wastewater into water bodies in the total amount of discharges,%	16,38	12,93	21,15	18,27	13,72	13,0
Increase water efficiency	Water capacity of GDP, cubic. m of water used per 1000 UAH of GDP (in actual prices)	23,85	19,61	15,27	11,73	10,30	3,2
	Current water content of GDP,% to the level of 2015	100,00	82,23	64,02	49,16	43,19	90,0

Source: Generalized by the author on the basis [12]

In the period up to 2030, the strategy envisages reducing the level of water capacity of GDP to 2.5 m³ of used water per UAH 1,000 of GDP. Such goals are focused not only on solving the global environmental problem, however, have a direct impact on the unit cost of production, helping to improve the overall economic performance of enterprises and the economy as a whole. In line with Goal 8 of the Sustainable Development Strategy, decent work and economic growth are ensured. Tasks aimed at achieving this goal are:

1. To ensure sustainable GDP growth through modernization of production, development of innovations, increase of export potential, introduction to foreign markets of products with a high share of value added in terms of estimates: Index of physical volume of GDP, %; The share of gross fixed capital formation in GDP, %; The share of exports of goods used in the production of high and medium-high technologies in total exports of goods, %; Ukraine's place in the Global Innovation Index;

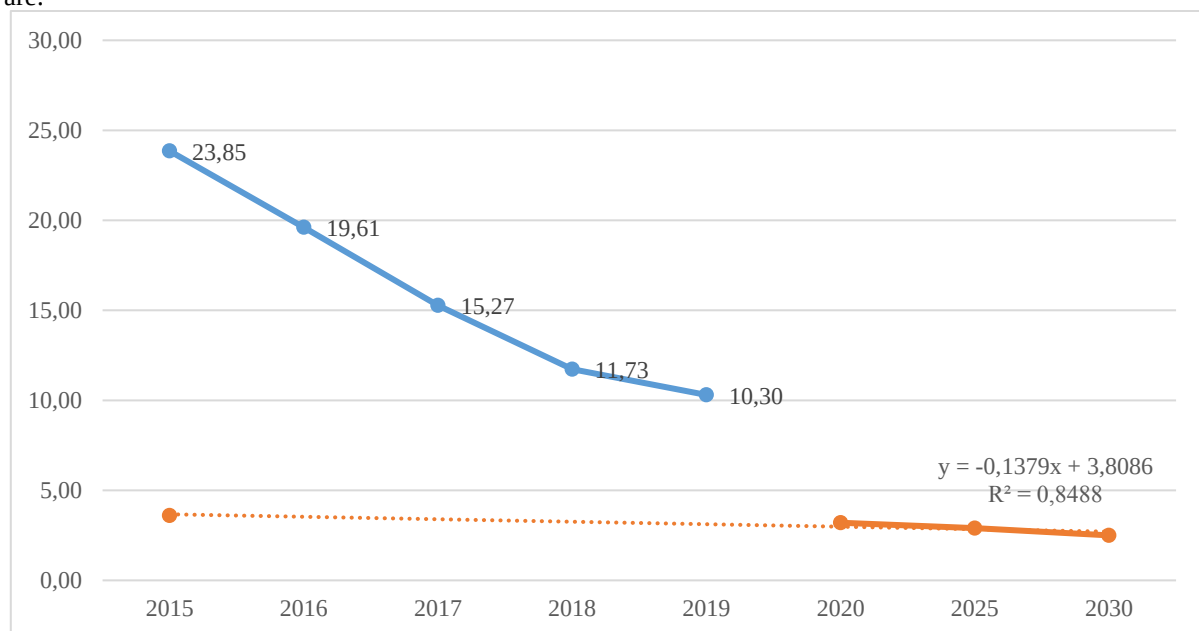


Fig. 2. Reservoir of GDP, m³ of used water per 1000 UAH of GDP (in actual prices), 2015-2030.

2. To increase the efficiency of production on the basis of sustainable development and the development of high-tech competitive industries. Assess the level of

implementation of this task is based on estimates:

- Coefficient return on fixed assets;
- Productivity change index, %

Table 4

Dynamics of sustainable development goals in terms of sustainable GDP growth based on modernization of production, development of innovations, and increasing production efficiency on the basis of sustainable development and development of high-tech competitive industries (2015-2019)

Indicator	Years					Target benchmark for 2020
	2015	2016	2017	2018	2019	
Index of physical volume of GDP, %	90,2	102,4	102,5	103,4	-	104,0
The share of gross fixed capital formation in GDP, %	13,5	15,5	15,8	17,7	-	23,0
The share of exports of goods used in the production of high and medium-high technologies in total exports of goods, %	19,2	17,3	16,8	17,0	16,4	25,0
Ukraine's place in the Global Innovation Index	64	56	50	43	47	50
Coefficient return on fixed assets	0,1194	0,1199	0,1195	0,1204	-	0,1300
Productivity change index, %	99,2	103,5	103,2	102,1	-	104,0

Source: Generalized by the author on the basis [12]

Table 5

Dynamics of indicators of realization of the goals of sustainable development in the part of performance of the tasks focused on maintenance of decent work and economic growth, (2015-2019).)

Assignment	Indicator	Years					Target benchmark for 2020
		2015	2016	2017	2018	2019	
Increase employment	Employment rate of the population aged 20-64,%	64,4	64,2	64,2	65,6	66,9	66,0
Reduce the proportion of young people who do not work, study or acquire professional skills	The share of young people who do not work, study or acquire professional skills, in the total number of people aged 15-24,%	17,2	17,8	15,9	14,5	15,6	17,0
Promote the provision of reliable and safe working conditions for all workers, in particular through the use of innovative technologies in the field of labor protection and industrial safety	Number of victims of accidents at work that resulted in disability for 1 working day or more,% to the level of 2015						
	Ukraine	100	104	101	97	91	75
	Vinnitsia region	100	109	98	122	115	
	The number of deaths from accidents at work,% to the level of 2015						
	Ukraine	100	107	98	109	113	70,0
	Vinnitsia region	100	93	100	60	140	
Create institutional and financial opportunities for self-realization of the potential of the economically active part of the population and the development of the creative economy	Proportion of employees engaged in work with hazardous working conditions in the total number of full-time employees, %	28,9	-	28,4	-	29,6	22,0
	Number of employees in medium and small businesses, million people	6,5	6,5	6,6	7,0	-	8,3
	Share of value added by production costs of medium and small enterprises, in% of the total amount of value added by production costs	58,1	62,3	62,6	64,3	-	70,0
	Ukraine's place in the ranking of ease of doing business Doing Business	81	80	76	71	64	30,0

3. Increase employment;

4. Reduce the proportion of young people who do not work, study or acquire professional skills. To this end, measures are taken and their effectiveness is determined through the evaluation ratio «The share of young people who do not work, study or acquire professional skills, in the total number of people aged 15-24 years», which is expressed in%;

5. Promote the provision of reliable and safe working conditions for all workers, in particular through the use of innovative technologies in the field of labor protection and industrial safety;

6. Create institutional and financial opportunities for self-realization of the potential of the economically active part of the population and the development of the creative economy. Realization of such task in the context of the purposes of sustainable development is possible through use of modern tools in system of management of the enterprise and assistance to the state. The analysis of the effectiveness of actions and measures aimed at implementing this task is carried out thanks to the assessment:

- Number of employees in medium and small businesses, million people;

- Share of value added by production costs of medium and small enterprises, in% of the total amount of value added by production costs;
- Ukraine's place in the ranking of ease of doing

business Doing Business.

We have made such an assessment in the table 4-5.

Table 6

Dynamics of indicators in terms of implementation of sustainable development goals in terms of implementation of tasks aimed at reducing the level of marine pollution, (2015-2019)

Tasks of Sustainable Development Goals	Goal evaluation indicator	Years					Plan until 2020
		2015	2016	2017	2018	2019	
Reduce marine pollution	The share of discharges of polluted wastewater in the total discharges to the marine environment , %	29	28	30	27	-	11
Ensure the sustainable use and protection of marine and coastal ecosystems, increase their resilience and restore them through innovative technologies	Area of territories and objects of the nature reserve fund of coastal regions,% of the territory of coastal regions	5,81	5,82	5,82	5,84	5,93	7,0
	Area of territories and objects of nature reserve fund in the waters of the Black and Azov Seas, thousand hectares	612,8	612,8	612,8	612,8	625,9	650,0
Introduce effective regulation of marine bioresources extraction	Volumes of extraction of aquatic bioresources in the exclusive (marine) economic zone of Ukraine, thousand tons	34,2	40,3	42,5	30,0	30,2	36,

In order to reduce the level of pollution of the marine environment (Goal 14. Conservation of marine resources) work is being done to reduce the share of discharges of polluted wastewater in the total discharges into the marine environment.

This indicator is calculated as a percentage and in accordance with the State Development Strategy provides for a reduction by three times by 2030 compared to its base value. If in 2015 its target was 15%, in 2030 it should not exceed 5%. Today, assessing the dynamics of its change, we noted that it is not possible to implement this task in full, because in 2020 its target value should not exceed 11 ;, and in 2025 and 2030 - respectively 9 and 5%.

The implementation of these goals is focused on increasing economic potential, achieving the main parameters of environmental safety and the development of socio-economic infrastructure. This approach contributes to the implementation of the main directions of the State Policy of Ukraine in the direction of economic security, ecological balance and social security.

It is possible to implement such a strategy for the development of the state through the use of modern tools that allow on the basis of current data of evaluation indicators and the use of methods of evaluation, analysis, budgeting and forecasting to make effective management decisions..

The implementation of the state development strategy until 2030 is focused on the harmonization of the coexistence of business (small, medium, large and households), the social sphere and the state. Such changes are connected with the transition of all countries of the world to a socially oriented direction of development and to the improvement of the ecological situation in order to avoid a global ecological

catastrophe. Therefore, the activities of modern business structures are refocused on obtaining not only a positive economic result, but also on the spread of corporate social responsibility along with the implementation of state-defined environmental parameters and social protection measures..

We believe that in order to achieve the goals of sustainable development of the state by 2030, the activities of each enterprise should be focused on clearly defining the actual data of the economic situation, social measures and their effects and environmental impacts, with the development of forecasts taking into account state targets.

Such activities will contribute to ensuring economic development, balanced environmental status and the formation of socially oriented business, operating within the framework of regional plans and development strategies of the state, focused on solving socio-economic problems and ensuring sustainable environmental development while maintaining existing natural resource potential. Therefore, the legislation of Ukraine today is formed in such a way as to adapt the environmental standards of the European Union in the practice of management of domestic enterprises. One of the elements of the implementation of such a strategy for the development of a balanced development of society is to implement environmental management systems in the management system of the enterprise at all its levels. The formation of integrated management systems by implementing an environmental management system in the overall management system in compliance with all the principles and requirements of its operation will contribute to significant environmental and economic and social effects.

Therefore, according to the results of our study, we noted not only the rapid pace of development of

information exchange, but also the rapid pace of forced adaptation of society to such changes, and the existence in the digital environment. The development of technology is carried out with such speed that the transitional stages of levels of intensification become blurred and the state of consciousness of the social sphere does not always have time to adapt to too rapid radical changes..

The concept of "post-industrial society" was explored and proposed by D. Bell [13], who noted that «...post-industrial society is a society in whose economy the priority has passed from the production of goods to the production of services, research, organization of the education system and improving the quality of life; in which the class of technical specialists has become the main professional group and, most importantly, in which the introduction of innovations ... increasingly depends on the achievements of theoretical knowledge».

Post-industrial development of society has a direct impact on «sustainable development». Vernadsky's prediction of the intense human impact on the environment during the post-industrial stage of development was noted by many scientists who studied the theory of the «post-industrial» stage of development of society, in particular [14, 15]. Researchers who have studied the peculiarities of social philosophy have noted in their research that sustainable development can only provide a post-industrial economy.

The rapid pace of modern development of inter-economic relations encourages the fact that the concept of post-industrial development is constantly improving, and is not complete in scientific terms.

If the pre-industrial stage of development of society was focused on the use of the physical system of man and animal in the production process, the industrial development of society was focused on the intensive use of steam and electric machines in the production process. Whereas the basis of post-industrial development is the intensive use of the human mind aimed at the creation of artificial intelligence to develop technologies focused on the production of the maximum amount of high quality product with minimal resource costs and management of the whole process. The development of nanotechnologies and the rapid pace of their introduction into the production process of all sectors of the economy encourage changes in the very structure of enterprises engaged in such activities. In addition, the use of digital technologies has made it possible in the process of managing the performance of the enterprise to take into account the different interests of the enterprise, business, state, and combine them into a model of a single goal.

In the activities of enterprises of all industries, including in the process of economic activity of

agricultural enterprises, information has become one of the main factors determining the effectiveness of their activities. The ability to use information, analyze it and adapt it to specific business conditions is an important sign of the transition of the enterprise to the level of post-industrial development.

The main problem of the global transition to the stage of post-industrial development of society is the uneven level of development of different countries, and at the level of Ukraine - the uneven level of development of different regions. Uneven development, creates a disproportionate competitive economic conditions. Intensive digitalization of some enterprises or spheres of activity contributes to reducing the unit cost of production and reducing the complexity of them, which are the main factors that determine the economic performance of enterprises. Products manufactured by similar structures with higher costs are uncompetitive. The same situation has developed in the creation of interstate cooperation, where high-tech countries that are constantly updating their own technologies, from genetic engineering to space technology, automatically gain a competitive advantage at every stage of their development..

In the process of studying the main indicators of post-industrial development of society, we analyzed the assessment of the innovation potential of the European Community, candidate countries for accession to the EU and some other countries. This assessment was implemented through the «EU Innovation Scoreboard». Methodologically, the Scoreboard calculates the average index of innovative development of the participating countries on the basis of twenty-seven indicators. When grouping the obtained results of these indicators, which form the index of innovative development, the division of countries into four groups is carried out:

- «innovation leaders» (120% of the EU average),
- «strong innovators» (90-120%),
- «average innovators» (50-90%).
- «emerging innovators» (below 50%) [7].

We conducted a comparative assessment of the index of innovative development of Ukraine and the index of individual European countries in accordance with the «EU Innovation Scoreboard» (Fig. 3). The results of this evaluation obtained through the use of an electronic tool are used by the European Innovation Inspectorate to carry out a comparative evaluation of research results and determine the effectiveness of innovation in the EU and in other European countries. In the process of such assessment, a meticulous analysis of the strengths and weaknesses of the existing innovation systems of each country is conducted.. This helps to clearly identify the problem areas in the field of innovation. Which allows them to evaluate and develop measures to address.

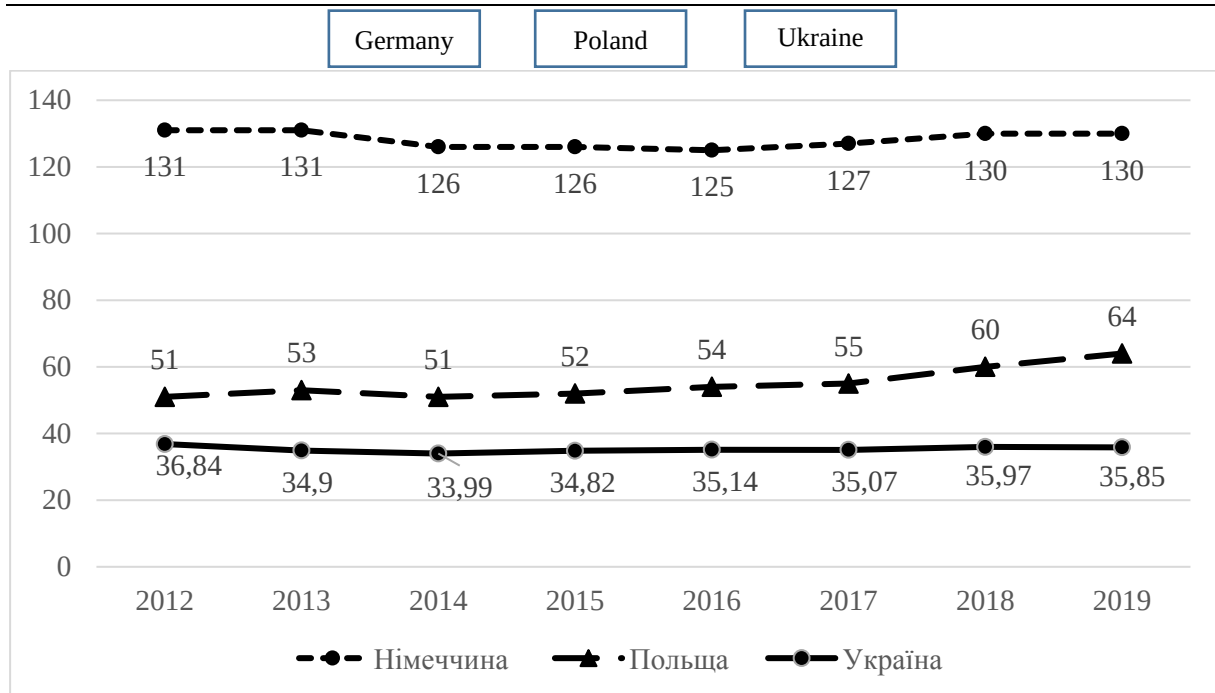


Fig. 3. Comparative assessment of the index of innovative development of Ukraine with other EU countries in accordance with the «EU Innovation Scoreboard» (2012-2019)

Source: Created by the author based on data [7]

We noted that in 2019, according to the Innovation Index, Ukraine is classified as: «An emerging innovator». The value of the innovation index for Ukraine in 2019 is 35.85. The negative is that when estimating this index, we noted that in the dynamics over the years, its value tends to decrease. Thus, in 2012 the value of the Innovation Development Index was 36.84.

Analyzing components of the index of innovative development, among the weaknesses noted the great importance of the indicator of unrealized opportunities in the innovative development of Ukraine in the direction of commercialization of innovations and in the field of protection of intellectual property rights.

Important strengths in assessing the index of innovative development of Ukraine should be identified:

- favorable geographical location,
- capacious market,
- the existence of a deep and comprehensive free trade area between Ukraine and the EU,
- human development.

A similar assessment of the level of innovative development of various countries, including Ukraine, is conducted jointly by Cornell University with the INSEAD Business School and the World Intellectual Property Organization, forming the Global Innovation Index.

Table 7

Comparative assessment and rating of the Global Innovation Index (GII) of Ukraine and other countries, 2013-2019

Years	Country							
	Ukraine		Germany		Poland		USA	
	Index	Rating	Index	Rating	Index	Rating	Index	Rating
2013	35,8	71	55,8	15	40,1	49	60,3	5
2014	36,3	63	56	13	40,6	45	60,1	6
2015	38,5	64	57,7	12	40,2	46	60,1	5
2016	35,7	56	57,9	10	40,2	39	61,4	4
2017	37,6	50	58,4	9	42	38	61,4	4
2018	38,5	43	58,03	9	41,67	39	59,81	6
2019	37	47	58,19	9	41,31	39	61,73	3

Source: Generalized by the author on the basis [16]

Thus, the leading industrialized countries occupy the leading positions annually in terms of this index of innovation, which corresponds to the economic indicators of their development that they occupy.

However, we believe that full digitalization without human intervention is not able to anticipate all risks and develop algorithms to minimize them. Only

the optimal combination of digital technologies and human intelligence is able to control production processes and direct them towards the development of economic well-being, social welfare and environmental security.

It should be noted that the absolute transition to the post-industrial stage of society, which involves the

exclusion of intelligence and human labor from the chain of production process, can generate a crisis. For example, the US financial crisis has prompted the country's leadership to support the industrial sectors of the economy.

According to its specifics, Ukraine is an agrarian state, therefore, it is at the stage of industrial development with the active development of the agricultural sector in the direction of post-industrialization.

Not only the financial crisis can affect the post-industrial stage of development. In recent years, the globalization of post-industrial development has been complicated by both environmental and social crises. The unwillingness of states to abruptly move to post-industrial development is associated with the lack of technologies that would be able to completely replace the use of non-renewable energy sources in the production cycle and in the life of society..

In the course of our research, it was confirmed that Ukraine is a country with complex environmental problems. Unbalanced use of natural resources and lack of waste recycling are typical problems for developing countries. We noted that with increasing indicators of economic development there is an intensive increase in the use of non-renewable natural resources, increasing the amount of waste. All this increases the level of anthropogenic pressure on the environment.

Whereas, Ukraine has accepted the conditions for the implementation of the Sustainable Development Goals, supporting the global goals of sustainable development to 2030 proclaimed by the resolution of the United Nations General Assembly of September 25, 2015 № 70/1 and the results of their adaptation taking into account the specifics of the development of Ukraine, there was a change in the approach to the organization of management at all levels. Efforts of both political, economic and social spheres are necessary for the realization of the Sustainable Development Goals of Ukraine. All management

decisions should focus not only on environmentally oriented production, but also on environmentally oriented consumption.

In the formation of Ukraine's GDP, the maximum share is occupied by energy- and resource-intensive industries. It is possible to change this only by changing the approach to the enterprise management system. Priority areas in the management system should be the introduction of non-resource-intensive technologies aimed at ensuring the development of the «green economy».

Integration of the environmental management system into the general management system of the enterprise is currently recommended at the level of legal regulation, as well as the conditions of cooperation of Ukrainian enterprises with international partners.

We believe that the most effective way to initiate the introduction of an environmental management system into the overall management system is to include it in sectoral development strategies and regional target programs.. The main initiative of the transition to environmentally oriented enterprise management should be to assess the effects of their implementation and recognition of such enterprises at the state level in terms of benefits (taxation system) and additional opportunities (priority recognition, benefits of participation in programs, etc.). Such tools of state support in initiating the implementation of integrated management systems in agricultural enterprises are currently lacking.

An important characteristic for making decisions on the effectiveness of cooperation of the external partner with the enterprises of Ukraine is the assessment of the share of innovatively active enterprises in the total number of industrial enterprises.. In the process of analyzing the dynamics of this characteristic assessed by the State Statistics Service of Ukraine, we noted the diverse nature (Fig. 4).

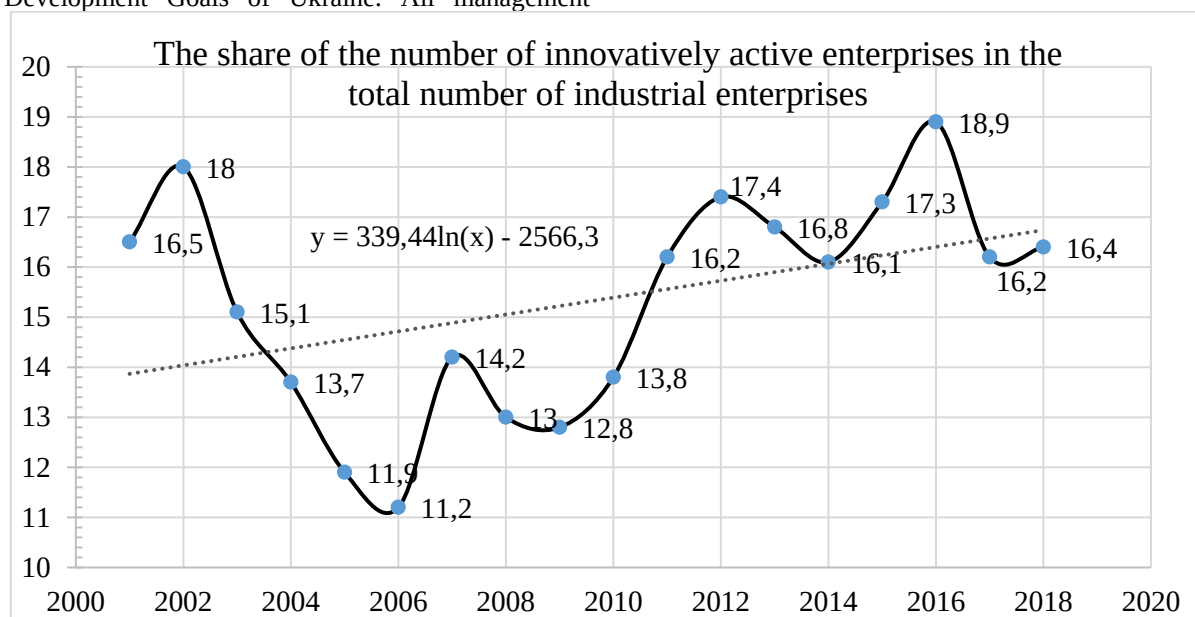


Fig. 4. Share of the number of innovatively active enterprises in the total number of industrial enterprises, % (2001-2019)

Source: Formed by the author on the basis of data from the State Statistics Service of Ukraine [9]

Share of value added by production costs of enterprises belonging to the medium-high-tech sector of the processing industry (in particular, production of chemical products; electrical equipment; machinery and equipment; vehicles, trailers and semi-trailers; other vehicles according to NACE) in total value added by production costs in the dynamics over the years decreased from 4.7% in 2015 to 3.8% in 2019. However, the target set for 2020 is 7.5%, which indicates the need to introduce changes in the technological process to fulfill the task.

Therefore, in the framework of ensuring the interests of the state and to meet the requirements of the legislation of Ukraine (Decree of the President of Ukraine 22722/2019 of 30.09.2019 "On sustainable development of Ukraine until 2030") companies need to form strategic plans and apply modern tools to the system management, which will contribute to the implementation of state strategy.

In a market environment, the activities of economic entities are based on commercial principles, which encourages active innovation, which is a determining factor in increasing the competitiveness of goods and services of domestic producers. We believe that the competitiveness of production can be ensured by:

- improving the quality of manufactured goods, works and services;
- improving environmental parameters and production characteristics;
- reducing the cost of goods, works and services through the introduction of resource-saving, low-waste (waste-free) environmentally friendly technologies;
- improving the management system through the formation of logistics links and solutions in the production process, which will reduce inefficient costs and losses of raw materials, energy, resources;
- cooperation and coordination of enterprise groups within regions forming regional clusters in the implementation of joint projects and programs;
- other.

Implementing such an initiative, based on

adherence to principles such as the functioning of the world's most promising clusters, will enable Ukrainian agricultural enterprises to work towards continuous improvement with the subsequent expansion of partnerships in the international market. Entry of enterprises into international trade markets is possible only in compliance with the requirements and rules established by them (certification of product quality, certification of the production process, etc.). One of the important requirements is compliance with environmental safety standards, indicators of product quality that they produce and then sold. The level of compliance is determined and regulated by international standards of the ISO 9000, ISO 14000 series, etc. Achieving the implementation of certain parameters at the enterprise is possible only with the introduction of innovations focused on a high level of environmental friendliness and economic efficiency (so-called environmental innovations), which will ensure a worthy place for Ukrainian enterprises and their products, goods, works and services in the international market. We have developed a mechanism to increase the competitiveness of enterprises in domestic and international markets (Fig. 5).

This mechanism involves the active implementation and use in the management system of elements of an integrated system using at each stage of the principles of international standards. The main condition for the implementation of the developed mechanism is the constant fulfillment of the condition of constant improvement of economic, environmental and social components. It is possible to realize it by development and introduction of ecological economically effective innovative technologies introduced at the enterprises of various forms of managing and kinds of activity..

Ensuring sustainable growth and a high level of competitiveness of Ukrainian enterprises in modern conditions is possible only on the basis of intensifying environmental, innovation and investment development, taking into account the latest requirements, in particular: environmental security, social protection and economic well-being

It should be noted that due to this, each region will have a similar cluster management scheme, using automated management systems to form a single information database and a transparent reporting system to ensure uniform distribution of state financial resources and opportunities to participate in various grand programs and projects..

The coordinating cluster body should not interfere in the work of the clusters themselves, but only promote the dissemination of accurate and complete information about markets, supply and demand, expand opportunities for interregional cooperation and form convenient for efficient logistics. An important task of the coordinating cluster body is to initiate and assist in the implementation of digitalization in all spheres of life of each of the cluster members.

For many years, discussions have been held to choose the type of organizational structure of the agricultural production cluster in Ukraine. However, we believe that the main thing is to understand the value of acquiring knowledge and developing innovative products based on them, which must be adapted to production. Their competitiveness depends on the priority of adapting cost-effective innovations in enterprises. It is worth noting that if the company has little intellectual potential, it needs the support of specialists.

Therefore, the most effective way to build a business is to form strong ties with participants in various fields of activity while creating a strong management system and a single information base. We believe that this is exactly the opportunity provided by the cluster structure. The most positive effect of cooperation in the cluster system is felt by agricultural enterprises, most of which are small and medium-sized in Poland, as well as in Ukraine. Since the most underdeveloped in the separate agricultural units is the management system and marketing system, when cooperating in such an association with scientific support, the company gets the opportunity of consulting, scientific support, knowledge in innovation, training and internships, business partnerships, additional markets, etc.

Consequently, we see the solution of such a problem in today's conditions for agricultural enterprises of Ukraine in the formation of territorial and sectoral corporate structures, which will be based on the principles of self-government.

The high level of digitalization and automation of production processes and a wide range of software products to service the production of various fields of activity makes it possible to combine all components of such a model into a single information database system for analysis for management decisions.

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FEATURES OF RECOGNITION AND ACCOUNTING OF NON-CURRENT TANGIBLE ASSETS OF THE ENTERPRISE

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Abstract

Modern conditions for effective management of the enterprise place increased demands on it in terms of management of non-current assets. This should be due to the fact that the competitiveness of the enterprise, financial stability, tactical and strategic prospects for its development depend on the rational and efficient use of non-current assets and, as a consequence, the ability to achieve a certain volume of activity and profit. Therefore, there is a need to study the state of formation and use of non-current assets of the enterprise, including non-current tangible assets. The article reveals the economic essence of "non-current assets". Their components with the separation of directly non-current tangible assets are considered. Methodical and organizational aspects of accounting for non-current tangible assets are studied.

Keywords: non-current assets, fixed assets, capital investments, long-term biological assets, accounting

Non-current assets - one of the most important components of the property of the enterprise. Analysis of the essence of "non-current assets" as an accounting category, indicates the presence of various scientific positions. First of all, it is worth noting the not so good name of these assets, because they, like current assets, are in circulation. However, the period of circulation of non-current assets significantly exceeds one operating cycle and the order of reflection of these assets in accounting is specific. The value of most components of non-current assets is reimbursed at the time of sale, as net income includes part of their value. Thus, non-current assets are assets that bring the company income for more than one reporting period, and the costs incurred for their acquisition are gradually included in costs over the useful life of such assets.

Recognition of resources as non-current assets is possible if they meet certain criteria. Such criteria are: appearance as a result of past events; the possibility of obtaining future economic benefits associated with the use of assets and the possibility of reliable valuation. Enterprises receive non-current assets through acquisition, creation, etc., ie as a result of past events. This means that the facts of economic activity that are expected in the future do not determine the emergence of assets. Yes, the intention to purchase fixed assets will not lead to the emergence of assets. The belief that non-current assets are a source of economic benefit is due to the assertion that all risks and rewards associated with their use have already passed to the enterprise.

The future economic benefit embodied in the asset means the direct or indirect flow of cash or cash equivalents to the enterprise. In addition, the company has the right to control the receipt of future benefits that are expected from the use of assets. Non-current assets are usually used by the company to produce goods or provide services that can meet the needs of consumers. Because consumers are willing to pay for them, this leads to a direct flow of economic benefits. It should be noted that under certain conditions, non-current assets do not directly lead to economic benefits, but may be necessary to obtain future economic benefits from other assets. An example is the basis of tools purchased for environmental protection or for occupational safety. In addition, the indirect receipt of economic benefits may be associated with the implementation of non-monetary, such as barter transactions, repayment of liabilities with tangible assets, etc. The company may receive economic benefits from the use of assets in different ways, depending on the direction of their receipt. In particular, non-current assets can be used to manufacture products, sell goods, provide services; exchange for other assets. In addition, own assets can be pledged, used to repay debt or distributed among business owners.

The conducted research of the terminological apparatus allows to systematize and single out the main criteria for recognizing an asset as a "non-current asset" (figure 1):

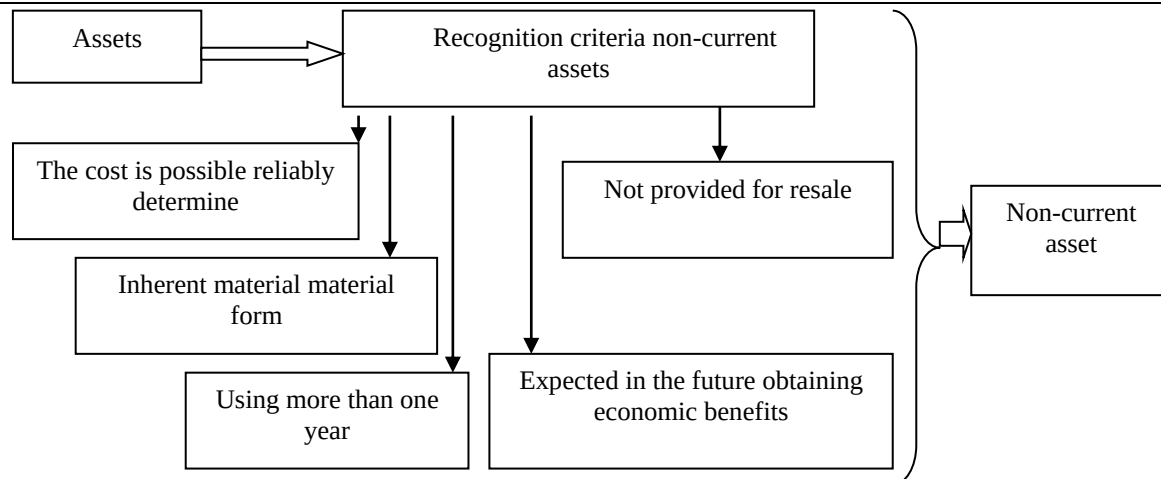


Figure 1. Criteria for recognizing non-current assets

The study of the literature makes it possible to identify the following positive features of the use of non-current assets, namely:

1. they are virtually unaffected by inflation;
2. they have a lower commercial risk of losses in the course of operating activities of the enterprise, ie they are protected from unfair actions of competitors under operating commercial agreements;
3. participating in the production of these assets, allow you to constantly make a profit;
4. they prevent or help to significantly reduce the loss of tangible current assets during storage;
5. allow to significantly increase the volume of operating activities during the period of economic recovery in the commodity market.

However, non-current assets in the process of operating use have a number of disadvantages:

1) subject to physical and moral wear. This is especially true of the active part of the fixed assets of production, and therefore, even if they cease to be used, they lose their value. Physical wear and tear is a process as a result of which elements of non-current assets become technically unsuitable for further use in production. Depreciation causes the depreciation of non-current assets due to the emergence of cheaper or more modern. In this regard, there is a need to form special sources of funds to recover physically and morally worn-out non-current assets;

2) quickly manage these assets, as a rule, because it is impossible to change their structure in a short period of time. Therefore, the deterioration of the commodity market, which causes a decline in production, reduces the efficiency of their use, if the company does not expand the range of products;

3) non-current assets are low liquid assets. This means that their conversion into cash without significant losses takes a long period (six months or more).

Therefore, non-current assets should be understood as a set of property and intangible rights directly involved in the production of goods and services, not intended for resale and the beneficial effect of which is expected to receive a long time (more than one year or operating cycle) .

It is worth noting that scientists suggest the separation of various classification features of non-current assets, but in accounting the most common is the classification by form of operation (by functional types) (figure 2).

We focus on the features of accounting for non-current tangible assets.

Since the effectiveness of accounting for non-current tangible assets depends on the ability to use accounting information in the management system, so this requirement must be taken into account when building an information system "non-current tangible assets" and the formation of its source information.

The purpose of accounting for non-current tangible assets is as follows:

- 1) determining the exact amount of receipt, disposal and transfer of non-current tangible assets;
- 2) timely and correct depreciation;
- 3) determining the result of the sale and liquidation of individual objects;
- 4) calculation of repair costs;
- 5) obtaining data on the movement of non-current tangible assets, initial and residual value and other indicators of their use.

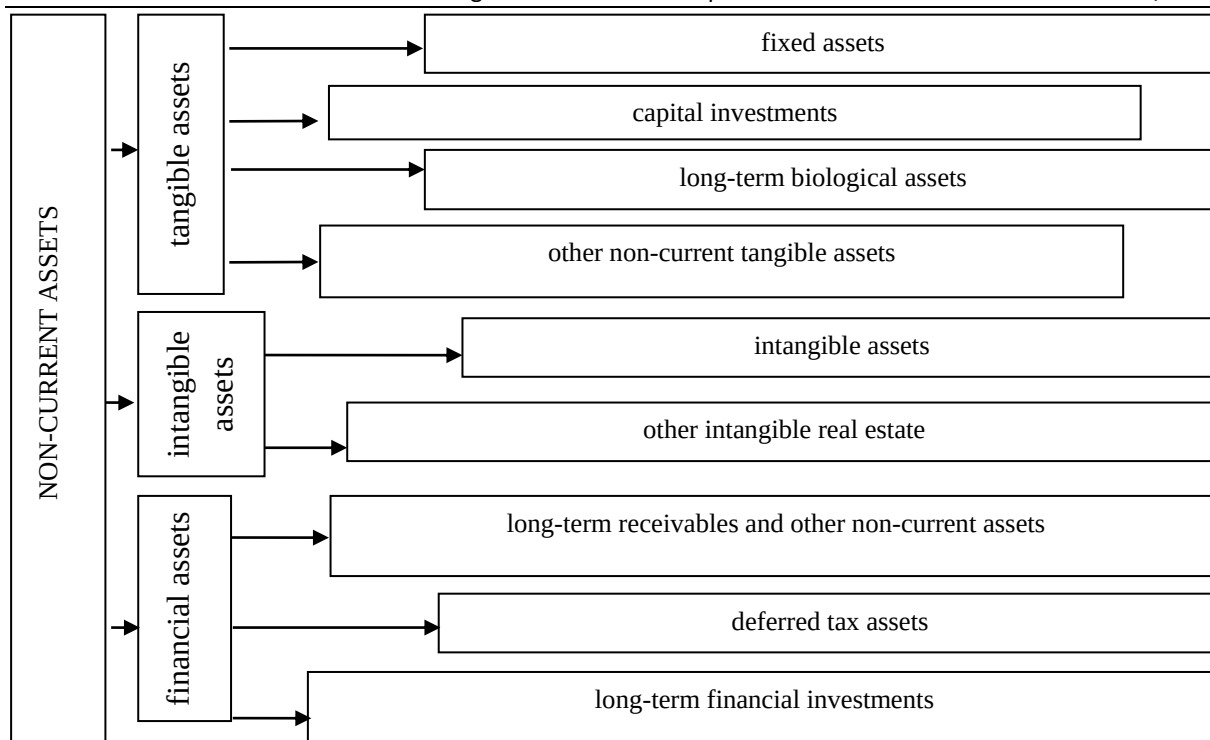


Figure 2. Classification of non-current assets by functional types and their components [1].

The organization of accounting for non-current tangible assets consists of the following interrelated stages:

1) Methodical stage - the choice of a system of certain methods and techniques based on documentation, inventory, use of synthetic and analytical accounts, application of the method of double entry, valuation of assets and liabilities, calculation, balance sheet and reporting;

2) The technical stage is the choice of the form of accounting that best corresponds to the industry and size of the enterprise and is to choose the method of processing accounting data computerized and computerized, developing a list and forms of accounting registers, establishing the order of entries in registers and data transfer in registers;

3) Stage of organization of accounting management - a separate department for accounting of non-current assets is allocated, the rights and responsibilities of employees are defined, as well as relationships with other management units.

As practice shows, non-current assets, including non-current tangible assets can come to the company as a result of:

- capital investments (in the case of: acquisition, construction, manufacture);
- contributions of the founders to the authorized capital of the enterprise;
- free transfer by other farms;
- exchange for other assets.

If non-current assets acquired from suppliers for cash, the costs associated with their acquisition are reflected on the debit of account 15 "Capital investments" [2]. The "Act of acceptance of transfer (internal transfer) of fixed assets" (form № 03-1) is used for registration of enrollment in fixed assets of separate objects, for the account of their commissioning.

When registering the acceptance of fixed assets, the act is drawn up in one copy for each individual object by the admission commission appointed by the management of the enterprise. This Act is the basis for enrollment of the object in the sub-report of the financially responsible person. The act is approved by the head, after which together with the technical documentation is transferred to the accounting department to reflect the data recorded in them on the accounts of synthetic and analytical accounting. Each object of fixed assets is transferred to the material safekeeping of the heads of structural units and their individual employees. This determines the need to keep records of fixed assets at the places of storage and use. To organize accounting and ensure control over the safety of fixed assets, each object according to the serial system is assigned an inventory number, which even after the disposal of fixed assets is not assigned to others [3].

Data on the availability and technical condition of fixed assets are recorded in the "Inventory of fixed assets". Descriptions are made during the annual inventory of fixed assets at the place of their storage, use and materially responsible persons. The form and content of inventory descriptions depend on the means that are accounted for. Analytical accounting of fixed assets is in the Inventory cards (form 03-6).

The card is opened, as a rule, for each inventory object. The form contains data on the technical features of the object, the rate of depreciation. Traditionally, it is kept in one copy by the accounting department, but there is an option to build an account with two copies of these forms: one in the accounting department, the other - in the places of operation of fixed assets "Inventory of fixed assets". Typical form № 03-9 "Inventory list of fixed assets" is used in the places of operation of fixed assets to account for each object for materially responsible persons. The data contained in this form must

be identical to the entries in the inventory cards of fixed assets. Inventory cards are registered in the Description of inventory cards of fixed assets. Inventory cards in the accounting file are arranged by groups of fixed assets with the allocation of a separate group of such objects that are temporarily not in use (overhaul, reconstruction and other improvements and conservation of objects). Before each classification group of fixed assets in the file is placed the Card of the account of the movement of fixed assets. It is filled in at the end of the month according to the inventory cards, which reflect the movement of fixed assets.

The primary accounting of fixed assets at the enterprise covers operations from receipt to the moment of liquidation of objects. Synthetic accounting of fixed assets is on account 10 "Fixed assets".

The debit of this account reflects the receipt of fixed assets and increase their initial value (due to revaluation, improvement, etc.), the credit - their disposal and depreciation. Synthetic accounting does not disclose information about the availability and movement of each object of fixed assets, to obtain the information necessary for the effective use of fixed assets, analytical accounting of fixed assets is organized. Analytical accounting of fixed assets is conducted by their groups and individual objects. A group of fixed assets is a set

of similar characteristics, purpose and conditions of use of fixed assets.

The system of analytical accounting at the enterprise allows to carry out effective control over availability and movement of fixed assets. However, the existing procedure for accounting for transactions with fixed assets at the enterprise does not sufficiently provide information on their implementation of the enterprise management system. Violation of the established requirements for analytical accounting at the enterprise complicates the process of document processing in the accounting department and prevents the receipt of prompt, complete, reliable, unbiased and accurate information about the availability and movement of fixed assets.

The "life cycle" of any object of non-current assets in the enterprise, including fixed assets, includes three main stages: receipt (acquisition; gratuitous receipt; manufacture; receipt of fixed assets through contribution to the authorized capital or exchange); operation (operations on improvement, revaluation, depreciation are carried out); disposal (write-off from the balance sheet as a result of the sale of objects, their free transfer, liquidation).

Fixed assets can come to the company in different ways, namely (figure 3):

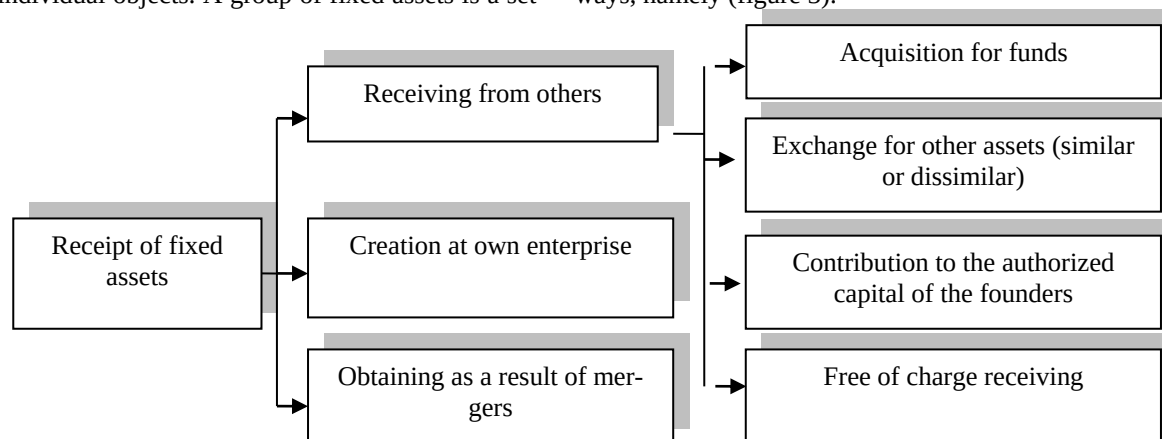


Figure 3. Conditions of receipt of fixed assets

Features of accounting for non-current assets in accordance with the ways of their receipt are summarized in the table. 1:

Table 1

Ways of receipt of fixed assets and their accounting at the enterprises of Ukraine

No	Ways receipts	How are accounted for
1	2	3
1	Purchase for cash	All costs incurred in the acquisition provided for in paragraph Provisions (standard) of accounting 7 "Fixed assets" are accounted for by debit 152 account "Acquisition (manufacture) of fixed assets", after all the necessary costs incurred and the fixed asset is ready for use, the entire accumulated amount from account 152 is debited to account 10 "Fixed assets" with the corresponding sub-accounts
2	Free of charge receiving	All expenses incurred in the event of gratuitous receipt are accounted for by debiting account 152 "Acquisition (manufacture) of fixed assets" and credit 424 of account "Non-current assets received free of charge". After all necessary expenses have been incurred and the fixed asset is ready for operation, the entire accumulated amount from account 152 is debited to account 10 "Fixed assets" with the corresponding sub-accounts. In the first month of depreciation, the monthly amount of depreciation is written off on the company's income by debiting account 424 and credit 746 "Other income"

3	Making founders to statutory capital	All expenses incurred in the contribution of fixed assets to the authorized capital are accounted for by debiting account 152 "Acquisition (manufacture) of fixed assets"; after all necessary expenses are incurred and the fixed asset is ready for operation, the entire accumulated amount from account 152 is debited to account 10 "Fixed funds" with the corresponding sub-accounts. The founder's debt on contributions is closed on credit 46 of account "Unpaid capital".
4	Acquisition fixed assets exchange for others assets	The residual value of fixed assets is written off from the balance sheet of the enterprise on credit 10 account "Fixed assets" with the corresponding sub-accounts to the expense account. Depreciation of the transferred fixed asset is written off against debit 131 "Depreciation of fixed assets".
5	Independent production	All costs incurred in the manufacture provided for in paragraph Provisions (standard) of accounting 7 accounted for by debiting account 152 "Acquisition (manufacture) of fixed assets"; After the production of fixed assets is completed and the object is ready for operation, the entire accumulated amount from 152 accounts is debited to account 10 "Fixed assets" with the corresponding sub-accounts.

To account for all types of fixed assets that came into operation, the accounting department uses the "Inventory card of fixed assets" (form №03-6). The form is filled in one copy on the basis of the "Act of acceptance - transfer (internal transfer) of fixed assets" (form № 03-1), technical and other documentation. The section "Brief individual characteristics of the object" records only the main qualitative and quantitative indicators of the object, as well as the most important extensions, devices and accessories related to it, limited to two or three most important qualitative indicators for the object excluding duplication data available at the enterprise (organization), technical documentation provided object. The provision of fixed assets of the inventory number is usually based on the number of the accounting account and sub-account on which the object is accounted. The technical side of assigning an inventory number to a fixed asset consists in applying paint to the number means or attaching a number token. Along with inventory cards, analytical accounting of fixed assets in enterprises is carried out in the book of fixed assets. In the book of fixed assets registration of fixed assets is carried out in terms of specific divisions of the enterprise (shop №1, shop №2 and others) with their delimitation by accounting and qualification groups (103 - buildings and structures, 104 - machinery and equipment, 105 - vehicles, etc.). Bookmarks are used to delineate the affiliation of inventory cards of fixed assets to a particular unit. With their help, groups of fixed assets are separated from each other in terms of divisions of the enterprise. For the registration of inventory cards of fixed assets is used "Description of inventory cards for accounting of fixed assets" (form № 03-7). The description is made in one copy by the accounting department in order to control the storage of inventory cards. Records are kept in terms of classification groups (types) of fixed assets.

To account for the movement of fixed assets by classification groups in the manual processing of accounting documents at the enterprise used "Card of fixed assets" (form № 03-8), which is filled out on the basis of inventory cards of relevant groups (types) of fixed assets and compared with synthetic accounting for fixed assets. On the basis of the final data of these cards the reporting forms on the movement of fixed assets are filled out. For object-by-object accounting of fixed assets by their location (operation) must be identical to the entries in the inventory cards of fixed assets

kept in the accounting department. At registration of internal transfer of fixed assets the "Act of acceptance-transfer (internal transfer) of fixed assets" is written out in two copies by the employee of department (shop) - the supplier. The first copy with the receipt of the recipient and the giver is sent to the accounting department, and the second - to the department (shop) - to the giver. When transferring fixed assets to another enterprise (lease), the act is drawn up in two copies (for the enterprise that rents and accepts fixed assets). For registration of disposal of fixed assets (except for motor vehicles) with their full or partial write-off is used "Act on the write-off of fixed assets" (form № 03-3). The act is drawn up in two copies by a commission appointed by the head of the enterprise, approved by the head of the enterprise or a person authorized to do so. The first copy of the act is transferred to the accounting department, the second remains with the person responsible for the storage of fixed assets and is the basis for the delivery to the warehouse of spare parts remaining as a result of their write-off, as well as scrap materials.

To prevent premature disposal, ensure the operability and efficiency of use and prevent premature wear and tear, fixed assets are subject to periodic repairs. Acceptance of completed works on repair and improvement of fixed assets (modernization, completion, reconstruction, etc.) is made out by the Act of acceptance-delivery of the repaired, reconstructed and modernized objects.

Due to the physical and moral depreciation of fixed assets, as well as to increase the volume of economic activity of the enterprise carry out current and capital repairs of these non-current assets, their modernization, modification, completion, reconstruction and other improvements. In accounting, measures to improve and repair fixed assets can be reflected in different ways. The primary consideration is whether they will increase the future economic benefits initially expected from the use of the item of property, plant and equipment. That is, if the fixed asset is repaired to maintain the object in working order and obtain the initially determined amount of future economic benefits from its use, the costs incurred for its implementation are included in costs and improvements to fixed assets, which leads to increase the future economic benefits initially expected from the use of this facility. In this regard, in accordance with Provisions (standard) of accounting 7 "Fixed assets", the initial cost of fixed assets

is increased by the amount of costs associated with the improvement of the object [4].

As an economic category, fixed assets are part of fixed production capital, which takes the form of means of labor and gradually, over many production cycles, transfers its value to the manufactured product. Eliminate the negative impact of depreciation of fixed assets on the productivity of their operation, as noted in his work N.V. Potryvaeva, possibly through the introduction of an effective institutional mechanism for their reproduction [5].

After all, it is the continuous renewal of fixed assets in the production process that accelerates the disposal of obsolete means of labor. Examining the process of reproduction of fixed assets, we found that fixed assets are part of the means of production, which is materially reflected in the means of labor, retains its form for a long time, transfers parts of its value to the cost of production and reimbursed only after several production cycles [5].

It should be noted that the cost of reproduction of fixed assets includes not only the cost of repairs, but also other activities carried out to maintain the facility in working order (technical inspection, supervision, maintenance, etc.) and to obtain the initially determined amount of future economic benefits of its use.

So the question is: will the improvements and repairs increase the future economic benefits originally expected from the use of the item of property, plant and equipment? In accordance with the Guidelines for the accounting of fixed assets [6] (hereinafter - Recommendations № 561) the decision on the nature and characteristics of the work carried out by the enterprise is made by the head of the enterprise taking into account the results of the analysis of the existing situation and materiality of such costs.

Replacement of certain important components (parts) of fixed assets (engines, etc.) may be shown, in particular, as replacement of fixed assets, if the useful life of such part differs from the useful life of fixed assets to which this component belongs. In this case, the replacement of such a component is reflected in the capital investment in the acquisition of a new item of property, plant and equipment and the write-off of the replaced one.

It should be noted that Recommendation № 561 also provides that the cost of improving fixed assets to recover future economic benefits expected from their use is recognized as a capital investment, provided that

the carrying amount of the asset does not exceed the amount of its expected return [6]. In addition, the amount of the expected recoverable amount is the higher of the net realizable value or the present value of future net cash flows from the use of property, plant and equipment, including its liquidation value. Therefore, Recommendations № 561 provide in some cases for capital investments to be reflected not only in the implementation of measures aimed at increasing the future economic benefits initially expected from the use of fixed assets, but also in the implementation of measures that result only in the recovery of future economic benefits expected from the use of fixed assets, such assets [6].

The improvement in fixed assets is directly related to certain costs, which are initially accumulated in the debit of sub-accounts 151 "Capital construction", 152 "Acquisition (manufacture) of fixed assets" or 153 "Acquisition (manufacture) of other non-current tangible assets". Once the improvement work is completed, the costs are debited to the relevant sub-accounts in accounts 10 "Fixed assets" or 11 "Other non-current tangible assets".

Note that the improvement of fixed assets is through analytical accounting reflected in the off-balance sheet account 09 "Depreciation deductions", an increase in the balance of which occurs by the amount of accrued depreciation. It should be noted that the reduction of the balance on this account occurs in the case of depreciation on capital investments, in particular in such areas of use as improvement (modernization, modification, completion, equipment, reconstruction, etc.) of fixed assets.

Expenses for the improvement of fixed assets as they are carried out are debited to account 15 "Capital investments" and credit to accounts 13 "Depreciation (amortization) of non-current assets"; 20 "Inventories"; 22 "Low-value perishable items"; 65 "Insurance calculations"; 66 "Payments to employees", etc. (if the work is carried out economically).

Subject to the improvement of the contractor, such costs are credited to account 63 "Settlements with suppliers and contractors".

Repair of fixed assets in the financial crisis is an essential factor in mobilizing funds to maintain the material and technical base of enterprises in working and functional condition. The reflection in the accounting of the costs of repair of fixed assets directly depends on the object of costs (table. 2).

Table 2

Reflection in accounting of repair of fixed assets	
Cost object	Reflection in accounting
1	2
Production products, performance works (services)	Expenses are included in the production cost of products (works, services) as part of other direct costs, reflecting the debit of account 23 "Production"
general production activity	Expenses are included in overhead costs and accounted for by debiting account 91 "Overhead costs"
general economic activity	Expenses are included in administrative expenses and accounted for by debiting account 92 "Administrative expenses"
Sales products (goods, works, services)	Expenses are included in sales expenses and accounted for by debiting account 93 "Sales expenses"
socio-cultural activity	Expenses are included in other operating expenses with their reflection on sub-account 949 "Other operating expenses"

The most popular procedure for adjusting balance sheet assets in accounting is the revaluation of fixed assets. Revaluation of property, plant and equipment is understood as bringing the residual value of property, plant and equipment to fair value or is considered to be an accounting procedure by which the residual value of property, plant and equipment is reconciled with its fair value.

Schematically, the order of reflection of the revaluation of fixed assets in accounting is shown in the figure 4.

An item of property, plant and equipment ceases to be recognized as an asset (derecognised from the balance sheet) if it is disposed of as a result of a sale, liquidation, free transfer, shortage, final deterioration or other reasons for non-compliance with the asset recognition criteria. To determine the unsuitability of fixed assets for use, the possibility of their use by other enterprises, organizations and institutions, inefficiency or inexpediency of their improvement (repair, moderniza-

tion, etc.) and execution of relevant primary documents, the head of the enterprise creates a permanent commission consisting of deputy head, chief engineer, the head of the relevant structural unit, the chief accountant, the person responsible for the safety of the object.

Write-offs are made by the Act on write-off of fixed assets (f. 03-3), which gives the characteristics of the object, the presence of precious materials, technical characteristics and reasons for write-off, the initial cost of the disposal, the amount of depreciation, residual value.

On the basis of the relevant documents (orders, acts, etc.) register the costs of liquidation of the object and revenue in the form of the value of the materials obtained, which according to the invoices must be transferred to the warehouse for safekeeping. Similarly, fill in the Act on the write-off of vehicles (f. №03-4). The accounting department makes a note about the disposal of the object in the inventory card and inventory description of fixed assets at their location.

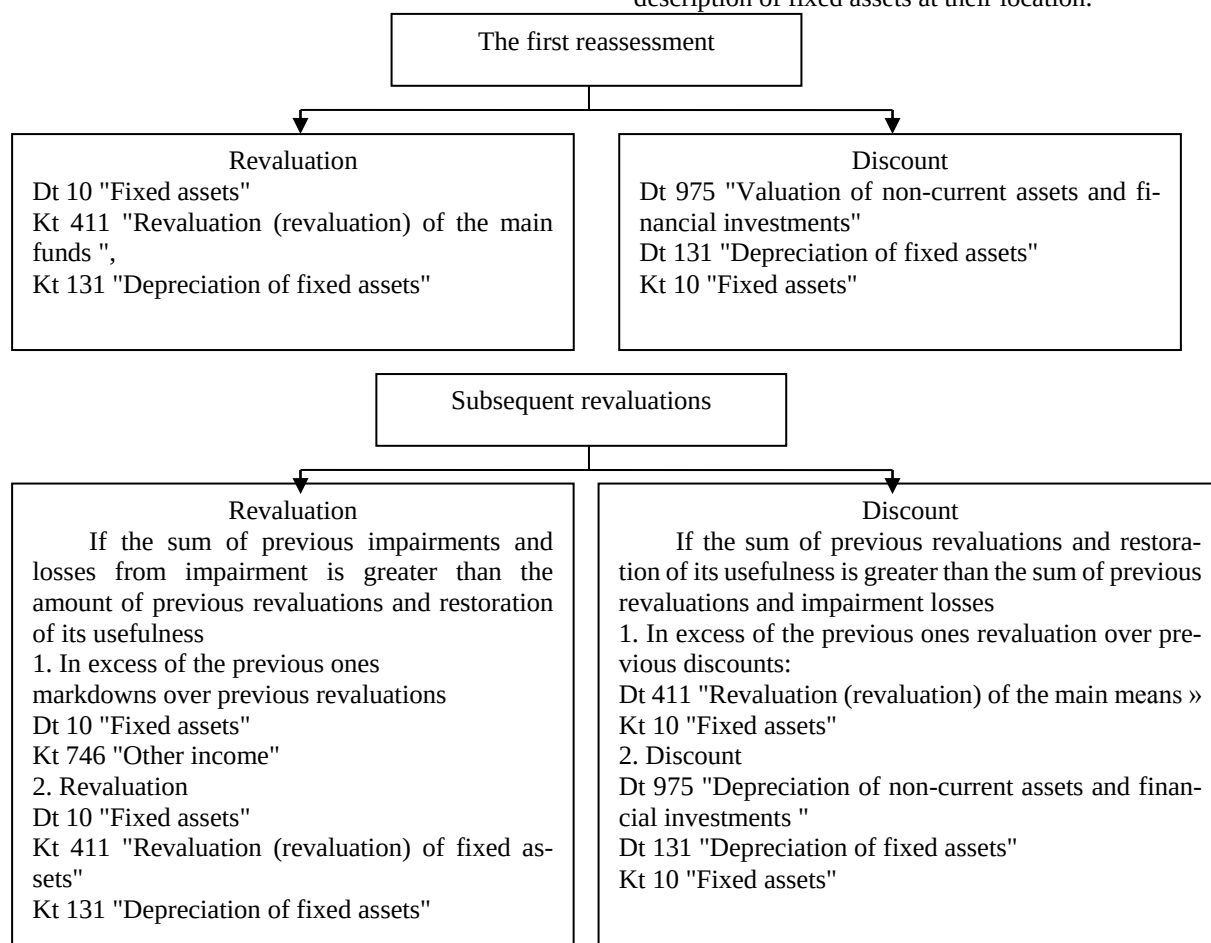


Figure 4. The order of reflection of the revaluation of fixed assets

Registers of analytical accounting of disposed fixed assets are attached to the documents, which for-

malize the facts of disposal of fixed assets. Generalization of information on methods of depreciation of fixed assets is presented in table 3:

Table 3

Methods of depreciation of fixed assets

Depreciation method	Description	Compared with other methods	
		shortcomings	benefits
1	2	3	4
Rectilinear	The amount of depreciation is determined by dividing the depreciable amount by the useful life of the item of property, plant and equipment	Features of moral wear are not considered	Ease of calculation, predictability of the amount of accumulated depreciation
Reduction of residual value	The annual amount of depreciation is defined as the product of the residual value at the beginning of the year and the annual depreciation rate as a percentage	The complexity of the calculation, the liquidation value of fixed assets can not be zero	Rapid accumulation of depreciation in the first periods of use of fixed assets
Accelerate the reduction of residual value	The annual amount of depreciation is defined as the product of the residual value at the beginning of the year and double the depreciation rate	Uneven distribution of depreciation amounts between periods of use	Features of moral wear are considered
Cumulative	The annual amount of depreciation is defined as the product of the depreciable value and the cumulative coefficient	Difficult for practical use	Predictability and planned accumulation of depreciation amounts
Industrial	The monthly amount of depreciation is defined as the product of the actual volume of production and the production rate of depreciation	Unpredictability of depreciation, difficulty in planning	Allows you to determine the specific participation of fixed assets in production and clearly transfer part of their value to the cost of production

Consider accounting for account 11 "Other non-current tangible assets", the purpose of which is to summarize information on the availability and movement

of other non-current tangible assets that are not reflected in the objects of accounting for account 10 "Fixed assets" (figure 5):

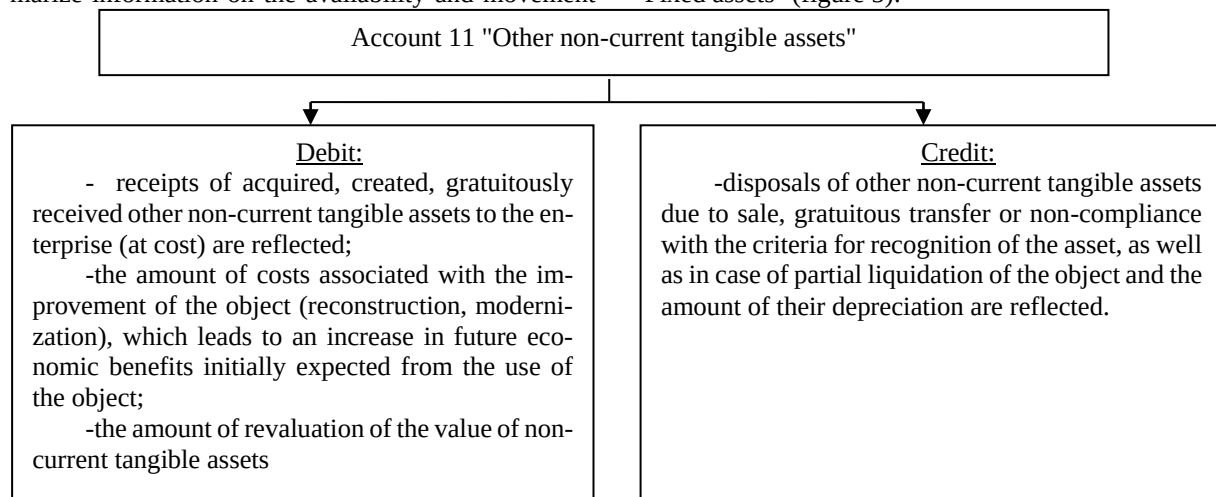


Figure 5. Purpose of account 11 "Other non-current tangible assets"

Table 5 presents account 11 "Other non-current tangible assets", which according to the current chart of accounts has seven sub-accounts, each of which is designed to account for the relevant groups of other non-

current assets, but not all of them are used in enterprises.

Table 5

Structure of account 11 "Other non-current tangible assets"

Sub-account of synthetic accounting	Type of other non-current tangible assets	Other non-current tangible assets included in the accounting group
1	2	3
111	Library funds	the availability and movement of library funds is recorded
112	Low-value non-current tangible assets	reflects the value of items whose useful life is more than one year, including special tools and special devices, the value of which is repaid by depreciation at the rate set by the company (norm), taking into account the expected method of use of such objects
113	Temporary (untitled) buildings	the account of operational temporary (untitled) constructions is conducted
114	Natural resources	records of the availability and movement of purchased natural resources for subsequent production (oil, gas, etc.)
115	Inventory packaging	inventory and movement of inventory containers are kept. Inventory packaging includes reusable durable packaging, which is not issued as collateral, but is permanently located at the enterprise and is used to store valuables in warehouses or to ensure the processes of production or sale (barrels, vats, tanks, metal boxes, etc.). This reusable durable packaging is called inventory because it belongs to the inventory items, each of which is assigned an individual inventory number. Inventory containers are taken into account in inventory cards - a separate inventory card is created for each inventory object
116	Rental items	records are kept of the availability and movement of assets intended for rent
117	Other non-current tangible assets	the presence and movement of other non-current tangible assets, which are not reflected in other sub-accounts of account 11 "Other non-current tangible assets"

Analytical accounting of non-current tangible assets is conducted for each object of these assets. For the same groups on separate sub-accounts keep accounting of fixed assets that are not used in production activities, as well as those that under lease agreements of integral property complexes or financial leasing (lease) are credited or credited to the balance sheet of the enterprise

Fixed assets come to the company in the order of capital investments, which are accounted for in account 15 "Capital investments". Accounting of objects in the fixed assets is based on acts in the debit of account 10

"Fixed assets" from the credit of accounts 15, 42 and others.

Long-term biological assets in accounting are a special group of non-current tangible assets of the enterprise that are able to provide agricultural products and (or) additional biological assets of livestock, crop production, and otherwise bring economic benefits for a period exceeding 12 months.

Accounting for long-term biological assets and generalization of information on this type of non-current tangible assets is on account 16 "Long-term biological assets" with the appropriate sub-accounts (table. 6).

Table 6

Structure of account 16 "Long-term biological assets"

Sub-account of synthetic accounting	Type of long-term biological assets	Long-term biological assets included in the accounting group
1	2	3
161	Long-term biological assets of crop production, which are valued at fair value	The presence and movement of long-term biological assets of crop production, which are measured at fair value less costs to sell, are recorded
162	Long-term biological assets of crop production, which are valued at initial value	The availability and movement of long-term biological assets of crop production are recorded, the fair value of which cannot be reliably determined, as a result of which their assessment was made in accordance with Provisions (standard) of accounting 7 "Fixed assets" and Provisions (standard) of accounting 28 "Impairment of assets".
163	Long-term biological assets of livestock that are measured at fair value	The availability and movement of long-term biological assets of livestock, which are measured at fair value less costs to sell, are accounted for.
164	Long-term biological assets of livestock, which are valued at cost	The presence and movement of long-term biological assets of livestock are recorded, the fair value of which cannot be reliably determined, as a

		result of which their assessment is carried out in accordance with Provisions (standard) of accounting 7 "Fixed Assets" and 28 "Impairment of Assets"
165	Immature long-term assets measured at fair value	The availability and movement of immature long-term biological assets (excluding animals recorded in account 21 "Current biological assets") are recorded, which are measured at fair value less costs to sell
166	Immature long-term assets measured at cost	Immature long-term biological assets are recorded (except for animals recorded in account 21 "Current biological assets"), the fair value of which cannot be reliably determined, as a result of which they are estimated based on the amount of costs incurred for their breeding

The debit of account 16 "Long-term biological assets" reflects the receipt (availability) of long-term biological assets, and the credit - disposal of long-term biological assets.

Receipt of long-term biological assets to the enterprise occurs under the following conditions: 1) acquisition for a fee from suppliers; 2) gratuitous receipt from legal entities and individuals and receipt as a contribution to the authorized capital; 3) transfer from current biological assets (transfer of animals to the main herd of working and productive livestock).

A decrease in the usefulness of assets leads to a change in their value. Thus, in accordance with Provisions (standard) of accounting 28 Impairment of Assets, an enterprise (at the balance sheet date) assesses whether there is any indication that an asset may be impaired. Namely, such signs are:

1) a decrease in the market value of the asset during the reporting period by significantly more than expected;

2) obsolescence or physical damage to the asset;

3) significant negative changes in the technological, market, economic or legal environment in which the enterprise operates, which occurred during the reporting period or are expected in the near future;

4) other evidence that the asset's performance is or will be worse than expected.

Objects of long-term biological assets are written off from the balance sheet of the enterprise (f.1 Statement of financial position) under the following conditions: 1) sale; 2) gratuitous transfer and transfer as a contribution to the authorized capital to another business entity; 3) loss of productivity of the biological asset (termination of the life process).

According to the study of the concept of non-current assets, we can conclude that this category of accounting is one of the most important in the business of

any business entity, but we can not talk about the unambiguity and simplicity of this concept. According to the results of the study, the article provides the following definition of non-current assets as assets that are a set of property and intangible rights that are directly involved in the production of goods and services, not for resale and beneficial effects that are expected to than for one year or operating cycle).

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ECONOMIC ASPECTS OF AGRO-FOOD CHAINS ON THE BIOFUEL MARKET OF UKRAINE

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Abstract

It is proved that ensuring the competitiveness of the biofuel supply chain is achieved based on improving the efficiency of participants functioning at each level, the formation of appropriate conditions of competition based on entering new marketeers, expanding the capacity of the internal market and its individual segments. The expediency of development of small forms of agrarian business in the field of bioenergy in the country is substantiated leading to growth of economy and, in particular, agrarian branch, creation of new jobs and expansion of tax base.

The value chains that are formed on the bioenergy market of the country are identified and characterized, and the factors that influence the efficiency of its functioning are systematized. A methodological approach to determine the economic feasibility of directing agricultural products in different lines of industrial use, including biofuel refining, which allows to determine the effect at the level of individual participants in the chain and the country as a whole. It is established that the quality confirmation of both raw materials and final products, which is achieved based on compliance with standards and certification of production activity plays a crucial role in the formation of the technological chain of production, marketing and final consumption of solid biofuels. Production feasibility of bioenergy resources through the cumulative value added formed in the respective technological circuits has been determined.

Keywords: supply chain, biomass, biofuels, value added, manufacturers, suppliers, energy service companies, traders.

1. Introduction. Ukraine has sufficient economic and organizational conditions for the development of bioenergy, which are characterized by favorable natural and climatic factors, a strong potential of the agricultural sector, the presence of excess labor and other factors. At the same time, despite the high resource potential of biomass energy, today there is a high internal energy demand, which is mainly met by traditional fuels and significant imports of energy resources.

The restraining factors for the development of the Ukrainian bio-energy market are explained by a number of circumstances, which are due, first of all, to economic and geopolitical processes. Achieving the level of European countries in our country requires the production of biofuels and the mobilization of the factors of the biofuel supply chain, increasing their efficiency and strengthening the state support, intensifying the processes of attracting domestic and foreign investments in this industry. That is why, under the current conditions, research on the specifics of biofuels supply chains in Ukraine is relevant, which identified unresolved issues and allowed to substantiate the directions of their development in terms of value creation, creation of new jobs and solving the country's import dependence on energy resources.

2. Supply Chain Literature. The concept of "supply chain" is widespread in the scientific literature, and is most often viewed as a set of participants (business operators) who bring products (services) to the consumer, logistics warehouses, wholesalers, retailers, other intermediaries and buyers. In the scientific literature, the supply chain consists of all operators directly or indirectly involved in meeting the requirements and needs of potential and actual consumers of the product [1, p.3], and in separate sources is considered as a collection of three or more organizations that directly interconnected and moving up and down flows of goods, services, finances and information from sources of acquisition to the end consumer [2]. In the supply chain, procurement, production and distribution are most often identified [3], and they include physical, information, financial flows, as well as management knowledge and experience aimed at satisfying the end-user requirements of goods and services [4]. Thus, by definition, the supply chain encompasses processes that include a wide range of activities, including business processes for the supply, production, transportation and sale of goods and services.

In addition, they highlight an element of the supply chain, such as after-sales support. The integrated

supply chain model can contain three interconnected flows: material flows (which include – procurement, transformation and distribution), information flows (electronic data exchange or formed links) and financial flows that include payment for delivered products and deliverables services to suppliers, subcontractors of goods and services, and payment by the consumer of the purchased product in trade organizations [5,6]. At the same time, in the process approach, the supply chain is a set of flows and corresponding co-operative and coordination processes between different participants in the value chain to meet the requirements of consumers in goods and services [7, 8].

Based on the above concept of "supply chain" we consider supply chain as a set of all activities and processes related to the flow of goods and information from the stage of production of raw materials to the final consumer of the product (service), and its purposeful development is carried out on the basis of organization, planning, control and regulation of the commodity flow, in order to create added value and to fully meet the needs of consumers.

3. Research methodology. The purpose of the research is to carry out the typification of biofuels supply chains in Ukraine according to the main classification traits and to substantiate proposals for enhancing their sustainability and competitiveness based on value added and job creation in the country.

The study was conducted on the basis of the fundamental provisions of the concept of a chain approach, developed by M. Porter [9], Gereffi, G [10], Morris, M. and R. Kaplinsky, [11,12]. The methodological approach of the research was based on the works of the above-mentioned scientists, as well as analytical studies of domestic scientists, summarizing the opinions of experts and practitioners in the field of biofuel production. Scientific publications of the leading world and national scientists in the field of formation and functioning of the supply chains, data of statistics bodies on production, processing, sale and consumption of biofuels in Ukraine, as well as additional information on value chain initiatives in the production and marketing of biofuels were used for the research by location of individual authors.

4. Research results. It is established that in the fuel and energy market of Ukraine there is a general tendency to decrease its capacity as a whole and in almost all kinds of bioenergy resources, both in terms of production and import. The exception is biofuels, where production and consumption increased 2.4 and

1.7 times respectively in 2007–2018, driven by increased use. This indicates that in Ukraine there is a growing dynamics of development of the bioenergy industry, which is achieved due to technological development of biofuel production processes, introduction of innovative approaches and use of foreign experience. However, the capacity of the biofuels market remains low, which proves the lack of effective instruments for state support for the biofuels industry.

The positive fact is that wind and solar production also tends to increase due to high green tariffs, land availability and sufficient insulation in almost all regions of Ukraine, availability of infrastructure to connect solar power plants to energy systems, and most importantly state support and business community.

It was found out that biofuels and wastes also increased over the period 2007–2018: primary energy and biofuels were almost doubled.

The study found out that a complete value chain has been formed in the bioenergy market, since all the links in the value chain are represented; in addition, different business models are presented in the market – from one unit to full vertical integration (from own raw materials to heat production by end consumers). It should be noted that in the formation of the supply chain of biofuels in the country the model "manufacturer-trader" is dominated.

The results of the analysis show that the vast majority of market participants are (quantitatively) involved in the production of wood chips, pellets and briquettes, and deliver the finished products directly to final consumers. At the same time, the study did not identify powerful biofuels traders in the domestic market that could dominate and act as powerful operators in the formulation of the product offer.

It is established that the vast majority of biofuel producers are moving up the value chain (trying to control access to raw materials) – it can be assumed that additional resources are needed to move down the chain (to heat production). This situation is a testament to the willingness of private capital to actively participate in the procurement and cultivation of raw materials.

The bioenergy market in Ukraine is young and in the process of formation. In general, there are only a few powerful players in the market that specialize in a particular value chain. Thus, there are a small number of players in the market that are clearly focused on a particular value chain – most either operate in multiple value chain units, or actively expand to other units, or relatively recently created to define the strategy clearly. We believe that the lack of specialized players is a limiting factor for the future development of the biofuels industry, as specialized in certain segments companies play the role of development engines of other relevant units, actively shape both the supply and stimulate consumer demand.

It has been established that the supply chain of biofuels has a limited number and there are no procurement units for some types. Given the opacity of the market, there are a limited number of companies in the domestic market that position themselves as procurement officers for biofuel production.

A limiting factor in the effective functioning of the biofuel supply chain is that there are no biomass heat producers (few players in quantitative terms). Another limiting factor is the lack of clear rules of the game in this market segment and its expansion can be transformed into a market development strategy. The lack of market causes significant volumes of biofuel exports, which does not allow to fully address the issue of value added from the functioning of the chain and the creation of additional jobs.

We will carry out financial and economic calculations on the value added in the formation of the biofuel supply chain based on the use of maize as a raw material for grain. It should be noted that this crop is a strategic food and feed crop and can also be used as a raw material in biofuel production. We have developed a methodical approach, calculating the economic feasibility of using a certain type of product for different purposes of use in production, but when directing agricultural products for biofuel production it is necessary to take into account the levels of food security for certain types of products.

We believe that the assessment of the economic potential of waste, energy crops in market circulation should be based on the calculation of optimal volumes of biofuel waste processing by individual types and provides for the establishment of restrictive criteria for the size of the minimum allowable areas for sowing and livestock for efficient provision of livestock raw materials.

In order to determine the value added in the production and sale of corn for grain, we used the indicator of the actual harvested area of this crop in the farms of the corporate sector of the agrarian economy for 2018, which is reflected in the appropriate statistical form.

In determining the volume of corn sales for grain on the domestic market and the level of purchase prices, as well as prices on milk for pigs (live weight), we used the data of the State Statistics Service of Ukraine, which is formed on the basis of data from the state statistical observation in the form of №21– general (monthly) "Report on sales of agricultural products". Information on the volume of corn exports and the level of export prices is based on data from the State Fiscal Service.

In determining the volume of milk production, it was assumed that agricultural enterprises, instead of corn on grain, grow corn on silage at a standard yield of 500 centner / ha. When calculating milk production and pig production, we used data from the State Statistics Service on the level of feed consumption per 1 centner of milk and pig growth, which is reflected in № 24 (annual) "Livestock Status".

The amount of expenditures (in terms of relevant articles) for the production of corn for grain, silage, milk, and pig meat in live weight were formed on the basis of data of the State Statistics Service of Ukraine, based on the form № 50 "Main economic indicators of agricultural enterprises for 2018 year", in part – the results of the state statistical observation in the form of № 2 – farms "The main indicators of economic activity of a farm, small enterprise in agriculture for 2018".

The rate of manure output per head of pigs and cows, as well as the ratio of corn grain weight to by-products, the yield of pellets per unit weight of corn stalks was based on the normative values, which are reflected in the relevant reference literature. The results of a study by H. Heletukha, a leading expert in this

field, were used to calculate the value added when silage was directed to biogas production [13]. The calculations of the value formation added under different variants of forming the corn supply chain for grain are presented in table 2.

Table 2

Calculation of value added in the production and sale of corn for grain in 2018, thousand UAH / ha of the harvested area

Supply chain	The amount of income	Expenses without consideration, wages, depreciation, rental costs	Value added
Sales of maize on the domestic market and use of crop residues as organic fertilizer	28,7	12,2	16,5
Production of biogas from corn silage	76,8	40,0	36,8
Sales of corn for export and production of pellets from stems	40,4	19,2	21,2
Growing corn for silage and use as feed for milk production	73,7	44,9	28,8
Growing corn for grain and use as feed in pig production	57,7	33,3	24,4
Production of corn on the domestic market and production of pellets from stems	39,9	20,4	19,5

Source: calculated by the authors.

The calculations from Table 2 show that the highest value added per 1 ha of sowing is obtained by growing corn on silage and channeling it as raw material in biogas production. Experts estimate that from one ton of corn silage can be obtained from 200 to 400 m³ of biogas, and the yield of biogas from one ton of dry matter of corn stalks will be 420 m³. The presence of maize repair forms allows the effective use of leaf stem for biogas processing (fermentation). It is known that this type of biofuels with high efficiency can be transformed into other types of energy, in particular, when used as fuel on gas generators the efficiency reaches up to 83%. As a result of biogas production in special bioreactors, so-called methane tanks, high quality organic fertilizers (biohumus) are obtained [14].

It is known that growing corn for biofuel production requires mineral fertilizers and plant protection products, so such cultivation technologies are particularly energy intensive and require cost optimization. Obviously, providing scientific selection of corn hybrids for the use of grain for biofuels, in order to adapt to the conditions of a particular region of the country, will reduce the cost of both starch and biofuels.

At the same time, the economic attractiveness of the corn use for energy purposes threatens to reduce food and feed. On this basis, the EU has adopted a new Renewable Energy Act (EEG 2012), according to which the maize share in the feed substrate for biogas plants should be no more than 60%. Therefore, today, EU countries consider sugar beets as an alternative to corn [15]. We believe that the most effective way of stimulating the construction of biogas complexes in the country's agriculture should be the introduction of graduation at a certain capacity and increasing the "green" tariff for small producers of bioenergy.

For example, in Germany in 2019, with a near total abandonment of firm "green" tariffs, a guaranteed tariff of 0.214 euros / kWh for 20 years applies to biogas plants with a capacity of less than 75 kW operating on

animal husbandry (but not less than 80%). For the larger, long-term (10 years) low-interest lending is guaranteed, with subsidies for the ability to operate at the request of previously installed capacity.

Considering the important role of corn grain in the formation of feed base, it is advisable to consider the economic feasibility of its alternative use in the production of pig and dairy cattle products. It should be noted that since 1993 the number of cows in agricultural enterprises has stabilized and as of January 1, 2019 is 467.9 thousand heads of cows, which is **1.3 thousand heads (0.3%) more** than the previous year. As of 01.01.2019, pig farms in agricultural enterprises make up 3395.6 thousand heads, which is **92 thousand heads (2.8%) more** than the corresponding period of the previous year. Therefore, it can be concluded that dairy farming and pig breeding are in a crisis situation in agricultural enterprises.

It should be noted that the use of corn for grain as a feed is also facilitated by the acceptable price ratio between milk, pig production and feed, the basis of which is corn grain. Thus, in 2018 the price ratio between milk and corn was 1: 1.6, estimated value providing extended reproduction – 1:1.1, between pig production and corn grain for grain – 1:12.9, estimated value 1:8. Thus, this ratio of corn, milk, and pig production prices indicates that there are prerequisites for the economic viability of its focus on milk production and pig production, subject to effective state support. To this end, it is advisable to introduce the following instruments: the renewal of a special VAT tax regime for dairy farmers and pig producers; to develop and adopt the Law of Ukraine "On the National Program of Breeding in Livestock by 2030"; providing targeted state support for breeders and pigs; identification of farm animals; improve the mechanism of interest rate compensation support by dividing them at the national and regional level by credits involved in the construction and reconstruction of livestock premises and the

processing of livestock products; improving the contractual base of integration relations in terms of partnership activities in the chain “production-processing-wholesale sales”; creation of preconditions for motivation of processors to establish long-term raw material zones by providing producers with preferential credits, leasing and renting of milk production equipment; assistance in land leasing under long-term lease and arrangement of tax holidays for the implementation of investment projects for the production of livestock and pig production; Consider applying support to livestock production through the establishment of government subsidies for the use of equivalent prices for livestock products, which would ensure an equal return on equal investment in productive capital.

It has been established that one of the problems holding back the development of the biogas, solid and liquid biofuels market at the micro level is the insufficient supply of bio and raw materials for the production of heat and electricity. Such capacities are used mainly by agricultural and processing enterprises, which have their own raw material base and thus solve the problem of utilization of by-products, in particular manure of farm animals, solid fuel wastes (sunflower husk).

Obviously, if a producer disposes solid fuel waste, it incurs additional costs in the form of environmental payments (the purchase of permits), the cost of which depends on the volume of such waste, and in the form of payments for their loading and unloading at landfills.

Therefore, the following business models can be distinguished in the market:

1. Manufacturers-pit sawyers. Companies providing services to the owners of raw materials (mainly forestry) in harvesting timber or exporting primary logging waste; They are biofuel producers – they have their own facilities for raw material processing, production and storage, but this model requires substantial capitalization (engineering), scale (forest cover) and transparency (right to harvest).

2. Full-cycle energy service companies. Companies supplying heat to end consumers – mainly to territorial communities. These companies are producers of biofuels and have their own raw materials (such as planting energy plants). The model is based on vertical integration, encompassing the coverage of all value added along the entire value chain. An important issue in this model is the formation of long-term partnerships with end consumers, the capital investment in the cultivation of raw materials and the formation of transparent conditions of heat supply.

3. Biomass trading companies that cooperate with different biofuel producers (different types, different volumes, etc.); enter into long-term contracts for the supply of biofuels to heat producers or end consumers. The economic interest of this model is based on the difference between the time of purchase (production season) and the time of sale (heating season) and scale (wholesale and retail sales). The strategic development of this model requires considerable working capital and establishing relationships (with producers and consumers of biofuels).

The main challenges to increasing biofuel consumption are its limited price competitiveness and the

financing of relevant technologies and projects [16]. We share the view of scientists that existing subsidies for traditional energy sources and other distortions of market mechanisms complicate their solution. A number of measures and incentives have been developed in Ukraine to expand the production and use of biofuels, but most of them are under implementation. In this situation, more effective public policy and effective legislation are needed to promote consumers' interest in using biofuels and to achieve their full environmental, economic and social benefits [17].

We believe that one of the factors that influenced the cessation of biofuel production and, consequently, the decline in rapeseed – the main energy crop – is the rise in world food prices. The IMF estimates that a 15 to 30% increase in food prices is the result of growing cereals for biofuel production. On the other hand, ethanol production, a major substitute for automotive fuel, is able to curb rising oil prices and help reduce inflation in major oil importers.

5. Conclusions. The main types of supply chains in the bioenergy market have been systematized and their characteristic features have been distinguished, which made it possible to substantiate the need for the development of appropriate infrastructure, which would facilitate its development and increase of added value. The proof of this conclusion is the dominance of direct deliveries by the owners of bio-energy raw materials. Based on the calculations, the cumulative value added in different corn supply chains has been determined, which involves the production of bio-raw material, its processing into biofuel, use as feed in the production of milk and pig meat, supply to the foreign market and domestic sales, which take into account partial return of nutrients to the soil when using the stems of the plant as an organic fertilizer and digestate obtained as a result of biogas production per 1 ha of cultivation of bio raw materials. It has been established that quality assurance (compliance with standards and certification of pellets) and increase in producer value added play a decisive role in the formation of the process chain of production, marketing and final consumption of solid biofuels.

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DEMOGRAPHY IN CRISIS CONDITIONS BASED ON MATERIALS FROM NORTH OSSETIA-ALANIA

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ДЕМОГРАФИЯ В УСЛОВИЯХ КРИЗИСА НА БАЗЕ МАТЕРИАЛОВ РСО-АЛАНИЯ

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Abstract

The article analyzes the demographic situation in the Republic of North Ossetia Alania in the context of the crisis. This situation poses huge national security problems and we would like to propose several ways to solve it.

Аннотация

В статье анализируется демографическая ситуация Республики Северная-Осетия Алания в условиях кризиса. Это ситуация несёт огромные проблемы национальной безопасности, и мы хотели бы предложить несколько путей для её решения.

Keywords: demography, coronavirus infection, mortality, fertility problem, crisis.

Ключевые слова: демография, коронавирусная инфекция, смертность, проблема рождаемости, кризис.

Итак, начнем с определений:

Демография – наука о составе, количестве и изменении населения на основании множества факторов (миграции, территорий, экономические изменения и тд.) На фоне кризиса многие страны претерпевают существенное снижение количества населения, в их числе и Россия. Сейчас демографический кризис является огромной проблемой всего человечества.

Демографический кризис – резкое снижение (убыль) или же наоборот чрезмерное перенаселение территорий. При резком сокращении населения смертность намного превосходит его рождаемость, а так же воспроизводство.

Для того, чтобы предложить пути решения проблемы, нужно для начала разобраться в сути этой самой проблемы. Как же возникает этот самый кризис? В начале происходит бум рождаемости, так называемый бейби-бум, в это время рождаемость стремительно поднимается относительно смертности. Основная причина этого – увеличение жизни человека в следствии технологического, научного и медицинского прогрессов. У человека теперь больше шансов дожить до глубокой старости и умереть естественной смертью. Несмотря на это, рано или поздно поколение все же стареет и умирает, что резко повышает шкалу смертности вверх, шкала рождаемости при этом всем наоборот начинает падать. Причиной тому послужило то, что дети не умирают в раннем возрасте, а значит нет необходимости заводить большое их количество в надежде, что все они доживут до взрослой жизни. Теперь родители больше заботит будущее своего потомства: «Смогут ли они устроить достойную жизнь своему чаду, дать хорошее образование, обеспечат ли ему свое собственное жильё?». Подобные вопросы всплывают все чаще, а как известно, чем больше нужно заботиться о своем потомстве, тем меньше его воспроизводится. Так, начинается резкий спад населения в стране. Со временем, в следствии все того же прогресса, рождаемость и смертность становятся примерно на одном уровне.

Для удобства, нами были разделены страны на три категории: «страны третьего мира», развивающиеся страны и развитые страны. Где первые претерпевают, как высокую рождаемость, так и высокую смертность, вторые – в начале резкий рост рождаемости и низкую смертность, которое позже перерастает в резко противоположную картину, то есть низкую рождаемость и высокую смертность. С последними картина намного сложнее, но в большинстве стран, они либо продолжают незначительно терять население, либо держат рождаемость и смертность на одном уровне. Россия находится во второй категории стран.

Хотелось бы начать издали и рассказать о демографии России прошлого, а потом уже перейти непосредственно к демографии нашей республики.

Времена первой мировой войны. Хотя наша страна и участвовала в жестокой войне, где погибли тысячи людей, серьезных потерь в этот период не было. Рождаемость держалась на относительно высоком уровне в отличие от Европейских стран.

Послевоенное время 1932-1935 года. Голод. В этот период население выросло с 10 до 17%. Многие женщины ушли работать в следствии нехватки рабочей силы, что и привело к резкому снижению уровня рождаемости. Так же сказалось то, что у молодежи не было где работать, статус колхозников был низок, что заставляло их учиться и получать достойное образование. Ну и конечно, не стоит забывать и про голод. Под влиянием этих факторов рождаемость резко пошла вниз.

Вторая мировая война. Резкий спад рождаемости и смертности в целом, в основном мужского населения. Однако наблюдается уменьшение детской смертности на фоне различных болезней из-за развития медицины.

Послевоенное время (после 1945г). Приблизительно в пятидесятых годах того времени, были разрешены аборты, а если быть точнее вновь разрешены, так как примерно в 1920 СССР стала первой страной, где официально их разрешили, но в тридцатых годах их запретили, что привело к резкой смертности женщин. Страна занимала первое место по их количеству, из-за низкого уровня полового воспитания. Однако в целом, наблюдался обычный естественный прирост населения.

Период с 1990г. После развала СССР Россия претерпевала серьезный демографический кризис убыль населения была чрезвычайно высокой, уровень смертности относительно уровня рождаемости был выше аж до 2008 года. В настоящее время картина в России довольно двойственная, хоть население и стремительно растет, однако вместе с тем увеличивается и количество семей, которые откладывают рождение или вовсе не заводят детей.

Проанализировав полученные данные, можно прийти к выводу, что на демографическую ситуацию в стране и отдельных её регионов влияют множество благоприятные и не очень факторов. Например, такие как война, голод, экономическая ситуация в стране, возможность работать и получать образование, уровень развития медицины.

Перейдем к материалам РСО-Алания. Картина не самая лучшая. Численность населения республики составляет 696 837 человек, большая часть из которых, около 46%, проживают на территории Владикавказа. В настоящее время в Северной Осетии коэффициент рождаемости равен 13,1, при коэффициенте смертности в 10,7. Однако, несмотря на такие цифры в нашей республике все еще наблюдается исключительно убыток населения. Это связано с естественной убылью населения, которая не компенсируется за счет миграции. Люди пытаются выбраться в города, где перспектив на дальнейшее

образование, работу и лучшую жизнь больше. В целом проблемы с приростом населения, как и во всей стране, происходят из-за совокупности трех кризисов: социального, экономического и экологического. Несомненно, основная проблема – обнищание народа, а в частности молодежи, что приводит в плохому образованию, снижению развития медицины и как следствие раннюю смерть. Снижение уровня образования приводит и к тому, что молодое поколение не видит перспектив в республике и уезжают в другие города или даже страны. Растет так же количество болезней и людей с зависимостями: алкоголизмом, наркоманией, пристрастием к никотину и тд.

Наша команда провела социологический опрос, где приняли участие около 117 человек в возрасте от 16 до 25 лет, обучающиеся в высших учебных заведениях. Он показал, что более половины из них, а именно 69 человек, хотят покинуть республику и после учебы работать в другом городе (47 при этом уточнили, что хотят уехать в Санкт-Петербург или Москву). 33 человека заявили, что останутся в республике, остальные – еще не определились. Подобная тенденция наблюдается не первый год.

Неужели мы ничего не можем сделать стой ужаснейшей картиной? Конечно можем, но не без помощи государства. Для начала нужно улучшить состояние экономики, увеличить количество денег, которые страна будет вкладывать в развитие республики. В частности деньги должны идти на развитие образования, молодежь сможет получать достойные знания, а значит работать на более высоких должностях с большей заработной платой. При этом нужно потом обеспечить занятость выпускников учебных заведений. Построить учреждения, чтобы обеспечить всё население занятостью, а так же сохранять уже существующие рабочие места. Например, в связи с последними событиями, нужно поддерживать материально каждое предприятие,

которое пошло в убыток или обанкротилось. Необходимо так же поднять оплату труда в республике, если люди будут понимать, что смогут получать достаточное количество денег, отпадет необходимость переезжать в другое место. Пройти профессиональную переквалификацию людям, чтобы улучшить качество выполняемого труда. Поддерживать семьи, которые зарабатывают ниже прожиточного минимума, а так же многодетные семьи материально и продуктами первой необходимости. Материальная поддержка развития медицины в Осетии будет играть не последнюю роль в улучшении демографических показателей. Это обеспечит более продолжительную и менее болезненную жизнь. Уменьшится количество больных, а врачи будут лучше понимать, как избавиться от того или иного заболевания. Важно не забыть про людей с зависимостями и построить центры их реабилитации. В школах ввести уроки полового воспитания, что увеличит осведомленность подростков о контрацепции, и сократит количество аборт. Последние пункты менее значимые, чем другие, но это не значит, что они и вовсе бесполезны.

Наша команда пришла к выводу, что единичные социальные выплаты не приведут к желаемому увеличению демографического показателя. Его улучшения можно добиться только с помощью поднятия уровня, а так же качества жизни населения республики.

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DEVELOPMENT OF ORGANIZATIONAL AND INFORMATION COMPONENT OF INFRASTRUCTURAL SUPPORT OF FUNCTIONING OF AGRICULTURAL ENTERPRISES IN UKRAINE

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Abstract

The article analyzes the organizational and informational component of the infrastructural support of the functioning of agricultural enterprises in Ukraine. The functions of the infrastructure of functioning of agricultural enterprises are clarified. The subjects of infrastructure of functioning of agrarian enterprises are characterized. The main obstacles to the development of agricultural logistics have been identified. The role of the Chamber of Commerce and Industry in Ukraine as a platform for the formation of business relations and communications is considered. The problems of development of the organizational and information component of the infrastructure of agricultural enterprises have been clarified.

Keywords: infrastructure, infrastructure, agricultural enterprise, elevator, logistics, service cooperative, chamber of commerce and industry.

Destabilization of the economy, limited financial resources and the political crisis in the country cause numerous problems for the development of agricultural enterprises. During the reform of the agro-industrial complex in Ukraine there was a diversified structure of economic entities, in particular in terms of farm size, organizational and legal forms, etc. In this regard, there is a need to provide a wide range of both general market and specific services (trade and intermediary, foreign economic, information, financial and credit, etc.) and the creation of specialized enterprises and organizations that provide these services. The development of organizational, legal, financial, informational, innovative and other components of the infrastructural support of the functioning of agricultural enterprises allows to accelerate and increase the efficiency of interaction of all business entities in Ukraine.

The formation and development of infrastructural support for the functioning of agricultural enterprises is the subject of research by scientists, including: D. Antonyuk [1], G. Bachynska [2], O. Vasiliev [3], L. Litsovska [2], V. Mesel-Veselyak [8], V. Mirakin [10], O. Nepochatenko [11], M. Pivovarov [12], M. Skrynko [14], S. Sonko [4], T. Usyuk [17] and others. In these works the weighty theoretical, methodological and methodical basis for research of problems of formation of infrastructural maintenance of functioning of the agricultural enterprises is put. However, the complexity and scale of these processes makes it possible to find unexplored aspects of this problem and continue scientific research.

The purpose of the article is to analyze the organizational and informational component of the infrastructural support of the functioning of agricultural enterprises in Ukraine and substantiate the directions of its development.

The infrastructure of functioning of agricultural enterprises is a complex of production and non-production industries that provide conditions for the reproduction of agricultural production. In the agricultural sector of the economy, the infrastructure sectors include all areas of transport, communications, logistics, procurement, sales, warehousing, refrigeration, elevator and packaging (packaging), reclamation and irrigation facilities, a network of scientific and information services.

Given that the basic role of the infrastructure of agricultural enterprises is the provision of various intermediary services to consumers, entrepreneurs, enterprises, institutions and organizations, we have identified such functions as:

- bringing agricultural products to the direct consumer. Infrastructure institutes help products find their consumers. Specialization in intermediary operations allows to reduce time for sale of production, to reduce expenses for circulation, to accelerate turnover of funds of the enterprise, to consider the needs of consumers as much as possible;

- providing feedback between production and consumption;

- redistribution of resources between different industries and within them;

- accumulation of temporarily free funds, regulation of money circulation.

Within the infrastructure of ensuring the functioning of agricultural enterprises, the following components are most often considered:

- financial and credit (financial institutions that provide soft loans, guarantee funds, credit unions, venture funds and insurance companies, government support in the form of a simplified taxation system, benefits, etc.);

- organizational and information (business centers, business incubators, Internet centers, counseling and youth centers, etc.);

- organizational and legal (range of actions of public authorities, specialized institutions and organizations, local governments).

The main function of the organizational and information component of the infrastructure of agricultural enterprises is to find optimal ways of storage, transportation and consumption of products, taking into account such factors as price, volume and speed of delivery, maintaining quality and avoiding risks. Each element of the organizational and information component affects the increase in consumer value of the product.

A characteristic feature of the process of selling agricultural products in Ukraine is the small capacity of the primary market of agricultural products, ie supplies of products by producers directly to processing enterprises, and the growing volume of the secondary market - intermediation. At the same time, the direction of trade flows to commercial sales channels with opaque terms of sale, determination of product quality and prices leads to significant financial losses for producers [6].

The share of agricultural products sold by agricultural enterprises in processing decreases, while in other areas it increases, in particular in the sale of cereals (Table 1).

Table 1

The structure of sales of grain crops by enterprises of Ukraine in all areas, in % of total sales, 2015-2019

Sales directions	2015	2016	2017	2018	2019
Processing enterprises	3,6	3,7	4,0	3,3	3,3
The population at the expense of wages	0,5	0,3	0,2	0,2	0,2
Shareholders at the expense of rent for land and property shares	8,3	6,0	5,6	4,7	3,8
In the market	4,9	3,7	3,4	3,1	2,2
In other areas	82,7	86,3	86,8	88,7	90,5

Source: compiled for [5]

Thus, in 2019, in the structure of sales of grain crops by sales areas, the largest share of sales to other economic entities remained, except for those engaged in the processing of agricultural products, which accounted for 90,5% of the total. The share of products sold to processing enterprises was 3,3%. From the sale on the market, through their own shops, tents by agricultural enterprises in 2019 received 2,2% of all cash receipts. Instead, during the last three years, 2,2% of the total sales of agricultural products were issued by agricultural enterprises..

For many agricultural entrepreneurs, efficient marketing of agricultural products is currently the most problematic segment in their activities. A particularly problematic issue is the organization of sales of milk, meat and fruit and vegetable products produced by small farms and private farms..

First, it is a technological component of these products. In particular, small producers of agricultural products, especially fruits and vegetables, which are mainly grown on small areas using manual labor, can not use modern technologies, can not unite and agree to grow the same types / varieties of products, which in turn makes it impossible to form homogeneous commodity batches of products and entry into the organized

market. In addition, small producers do not have the financial resources and capacity to build modern vegetable and fruit storages. As a result, they are forced to sell a significant part of their products for nothing from the «field» to resellers, or store grown products in unsuitable premises (cowsheds, garages, etc.) and incur losses from its damage, which reach 50% or more.

Secondly, it is the economic nature of the functioning of farms and private farms. Today, the biggest and key problem is discriminatory tax legislation in terms of value added tax on products produced by individuals – personal farms and sold through official channels. Personal farms lose 10 to 20% of sales revenue through the sale of products through official channels – processing enterprises, trade establishments, etc. That is why a significant part of the products are sold through shadow channels, the so-called sale «out of the field» for cash without documentation. Both producers and the state incur financial losses from such practice, because these products do not fall into the tax field, and only resellers receive income.

The main infrastructural components of the sale of agricultural products are agricultural markets, food markets. The dynamics of the number of markets for products is shown in Fig. 1.

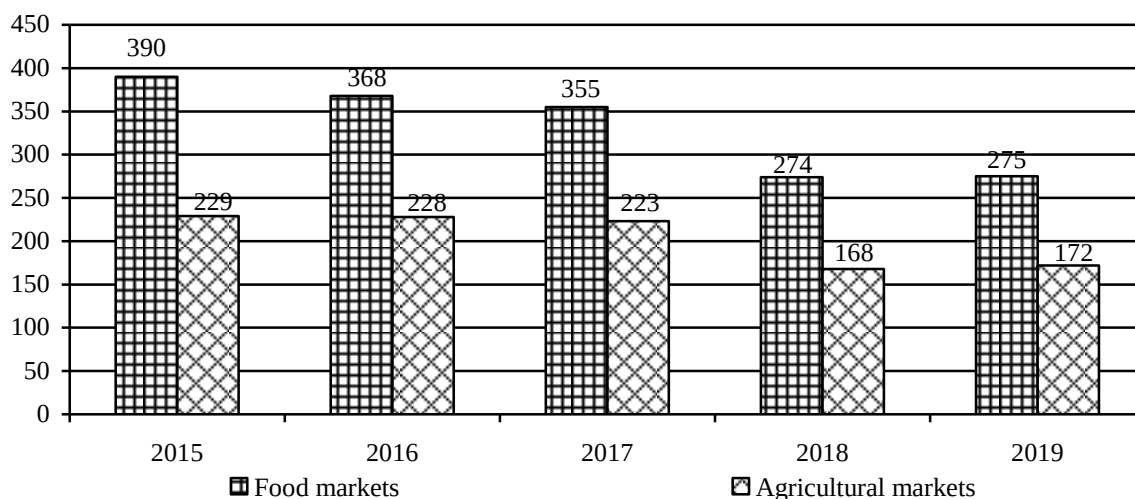


Fig. 1. Number of agricultural market infrastructure entities in Ukraine, 2019

Source: compiled for [5]

From the data in Fig. 1 it can be concluded that during the study period there is a negative trend to reduce the number of such entities in the agricultural market. In 2015-2019 alone, the number of agricultural markets decreased from 229 to 172, and the number of food markets decreased by 115 units.

The general picture shows a negative tendency to reduce the number of agricultural market infrastructure, which complicates the sale of agricultural products, objectively contributes to the growth of transaction costs of economic entities, worsening the conditions of entrepreneurial activity.

Effective development of the agar products market is possible only with the interaction and mutual complementarity of all components of its infrastructure, which remain independent and have their own functional focus.

The infrastructure of the modern market of agricultural products is characterized by the fact that the vast majority of agricultural producers are not engaged in harvesting and processing of agricultural products (if engaged, then in small quantities), and sell it to intermediaries.

Intermediaries, dictating to agricultural producers the conditions of sale and sale of products, first of all, set prices for it (overestimation of retail prices for agricultural products, its significant fluctuations and imbalances), which leads to a shortage of income by producers. Intermediaries influencing the development of agricultural entrepreneurship, in addition to wholesale markets, primarily include agricultural trading houses, service cooperatives, exhibitions and fairs, agricultural exchanges, a network of elevators and warehouses.

It is easier for agro-trading houses to make commodity-money settlements taking into account the interests of commodity producers and consumers of agricultural products. However, the efficiency of agro-trading houses due to the imperfection of the regulatory framework and the failure of the economic mechanism of their activities leads to distrust of producers to this structure and unwillingness to sell their products to them.

The main tasks of agricultural trading houses are:

- organization of agricultural markets in the area of agro-trading houses and ensuring their interaction with interregional markets of agricultural products;
- coordination of actions of commodity producers of the region (district) on accumulation and sale of agricultural products through the system of agrarian exchanges of Ukraine, formation of lots of agricultural products and processing put up for auction;
- assistance to producers in obtaining maximum profits from the sale of agricultural products, raw materials and products of their processing.

The sale of agricultural products with the use of trade agrodoms can be called purely paper, because in practice this sales channel is not effective, but for small farmers (or households) and even more so. In view of this, the formation of infrastructure should take place through the creation and expansion of a marketing network for the sale of agricultural products from producer

to consumer. It is the infrastructure, improving relationships and interconnections, creates conditions for the transition of agricultural entrepreneurship to a qualitatively higher organizational level of development.

Entities of agrarian entrepreneurship, specializing in the cultivation of grain, receiving high yields have problems in providing them with warehouses, elevators, transportation of products to ports for further export. Elevators under such conditions unreasonably increase the prices for their services. Maintenance of high grain yields requires significant investment for the construction of new powerful elevators that can ensure their safety.

According to the experts of the news agency «APK-Inform» in Ukraine there is a shortage of modern elevator capacity, so in 2019 there were more than 1237 elevators of various classes, which are designed for storage and primary processing of grain and oilseeds. Of these, certified, which not only store but also improve the quality of grain – 800 with a total storage capacity of 42 million tons. Of these, at the end of last marketing year, 898 elevators were connected to the Main Register and had the right to issue storage documents for grain. According to the Rating of regions of Ukraine with elevator capacities in 2019, the first place is occupied by Poltava region. Closes the rating – Transcarpathian region (Table 2) [4].

Table 2

Топ-10 областей України з елеваторними потужностями-2019

№	Region	Total area of the region, km ²	Elevator capacity, t
1	Poltava region	28,748	4000600
2	Odessa region	33,310	3888970
3	Kirovograd region	24,588	3200000
4	Mykolaiv region	24,598	2819600
5	Vinnitsia region	26,513	2784340
6	Kharkiv region	31,415	2359310
7	Dnipropetrovsk region	31,914	2200300
8	Khmelnitsky region	20,645	2165150
9	Cherkasy region	20,900	2162260
10	Sumy region	23,834	2084000

Source: compiled for [4]

Storage of grain in elevators aims to reduce the seasonality of its supply and sale, because during the harvest the market price of grain is minimal. Agricultural enterprises, which due to lack of storage capacity are forced to sell grain immediately after harvest, incur losses. In addition, the elevator creates additional value for its owner, because it improves the quality of grain that is stored.

Currently, the total storage capacity of grain, legumes and oilseeds in Ukraine is 78,3 million tons. 58% of these capacities belong to agricultural enterprises, and 42% are elevators. The main storage facilities are concentrated in Odessa, Mykolaiv, Kirovohrad, Poltava and Vinnitsia regions.

According to grain market experts, 95% of elevators store wheat grain, 93% – barley grain and 82% – corn grain.

Until a few years ago, agricultural holdings built most elevators solely for their own use. This is due to

the fact that the companies increased the land bank, respectively, received increasing yields of grain, which had to be preserved until the moment of sale at the best prices. After the abolition of grain certification standards in 2014, the pace of commissioning of new elevators increased sharply, and motivation changed: companies plan not only to store their grain, but also to provide services. At present, agricultural holdings and medium-sized farms mostly invest in the construction of elevators.

The largest owners of elevators include: Kernel (60 elevators); State Food Grain Corporation of Ukraine (53 elevators); Nibulon company (24 elevators); Myronivsky Hliboproduct Company (15 elevators) [15].

In Ukraine, there are many efficient companies that make money by providing farmers with grain processing and storage services, or buy grain at a low price, bring it to the desired condition and sell it at a peak price.

Currently, the most popular elevator complexes with a capacity of 5,000 tons to 50,000 tons of simultaneous storage. The cost of turnkey construction of a granary from 50,000 tons of storage per planned ton of storage reaches 100-140 dollars USA. And the larger the complex, the lower the cost of construction. The payback period depends on many factors and ranges from two to seven years.

One of the most expensive services in elevators is shipment by road and rail. According to one of the agricultural holdings, prices for loading and unloading depend on the region, on whether your own or hired locomotive, and range from 120 to 800 UAH for 1 ton [15]. Some companies double the tariff when shipping grain on weekends, holidays and at night. However, high prices do not make these services the most profitable.

High profitability of elevators is provided by finishing of grain, and the most profitable is drying though one of the most expensive for the elevator. The average humidity of corn from the field in Khmelnytsky, Vinnytsia or Ternopil regions is 24%, and the throughput is 14%. It is possible to earn UAH 440 on drying 1 ton of grain, the margin of this service at elevators is very high. To accelerate the payback period of investment it is necessary to install modern automated grain dryers with maximum energy efficiency.

Storage of grain in comparison with other services is the least profitable. In addition, prices for services depend on the market and competition.

However, high prices do not make shipment services the most profitable. High profitability of elevators is provided by part-time work. The most profitable part-time job is drying grain crops. Although this service, paradoxically, at the same time one of the most expensive for the elevator.

For storage, you should choose crops with high demand on the world market and taking into account the tendency to increase quotas on Ukrainian grain supplies to the European Union – such as rapeseed, soybeans and corn. In the international market there is a stable trend to increase the area under legumes with a high margin: chickpeas, lentils, beans and more. As large elevators, which are part of agricultural holdings, have low interest in them, farmers can earn by filling their «banks» in the off-season. The most marginal crop for storage is sunflower. Its deficit in the domestic market in February-April leads to a significant increase in prices. Net storage income from harvest to maximum value is about \$30 USA for 1 ton. While wheat has a minimum margin in Ukraine. There is a stable tendency in the world to reduce the area under this crop.

It should be noted that the cost of elevator services in connection with the rising cost of energy is growing.

There is an increase in prices for basic elevator services, including drying, cleaning, storage, as well as shipment by road and rail.

Most elevators and railway junctions for grain transshipment are in the southern regions of Ukraine. Therefore, the agricultural enterprises of the North do not have enough grain trucks or elevators to maintain their harvest. At the same time, the higher the costs of harvesting, transporting, storing, processing, processing and certifying agricultural products on their way from the agricultural enterprise to the port or retail network (logistics costs), the smaller the share of world or retail price received by agricultural producers. products. In addition, inefficient logistics means that the end consumer pays more for the goods in the supermarket or market.

The global community uses the Logistics Performance Index (LPI) to measure the effectiveness of logistics. The Logistics Performance Index was developed and proposed by the World Bank. LPI allows you to analyze and compare logistics activities in 155 countries and determine their ratings on a scale from 1 (worst value) to 5 (best value). LPI is determined by surveys of more than 6,000 representatives of the logistics business, who assess the infrastructure of 8 countries with which their companies most often carry out their logistics activities and provide transportation services.

More than 5,000 individual country assessments are used to compile the Index. The index is calculated as a weighted average of indicators that characterize the areas of quality assessment of the country's logistics system. The LPI rating includes 5 criteria according to which the study was conducted: customs procedures; infrastructure; international cargo transportation; logistical competence; cargo tracking; timely delivery.

The inefficiency of Ukrainian logistics and infrastructure is also reflected in the low rating of Ukraine according to the Logistics Efficiency Index (LPI) of the World Bank – 2018 (2,83), which is almost 33% lower than the first country in the ranking – Germany (4,20) (Fig. 2).

Logistics costs in Ukraine today are extremely high compared to its international competitors. For example, in the grain sector of Ukraine, logistics costs are 50-55 dollars. US per 1 ton of grain, while in France and Germany they average only \$ 30 US per 1 ton, in the US – 34 dollars USD per 1 ton. This difference is 20 dollars. The United States is a potential source of increased income and investment in agriculture. The cost of transporting products in Ukraine is 40% higher than in the United States and Europe.

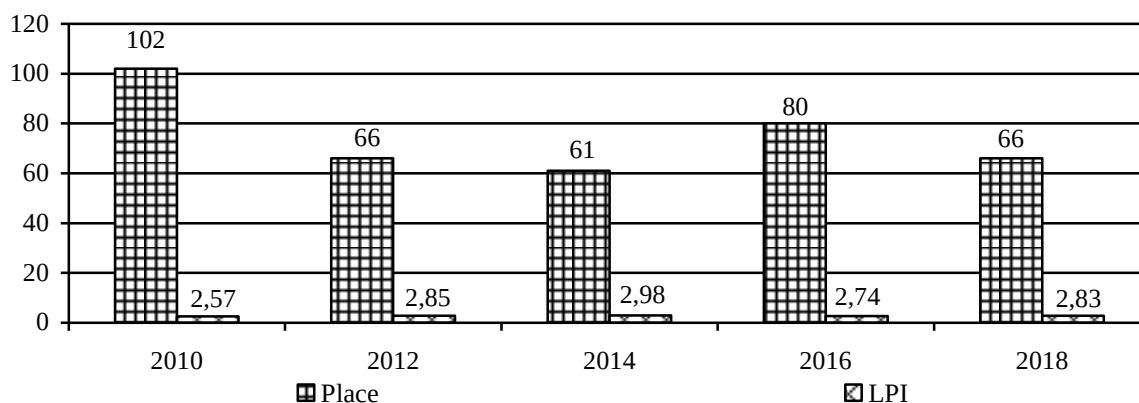


Fig. 2. Ukraine's place in the Logistics Efficiency Index (LPI)

Source: compiled for [16]

Analysis of the current state of agricultural logistics in Ukraine allows us to conclude that the main obstacles to development are:

- lack of a government program for the development of agro-logistics at the appropriate level;
- lack of qualified logistics personnel in agricultural enterprises;
- lack of funds for the implementation of logistics approaches, as software logistics products are too expensive for domestic enterprises;
- lack of funds for the construction of a sufficient number of modern warehouses;
- lack of funds for the purchase of modern vehicles;
- low quality of road surface, imperfect digital GPS software of Ukrainian roads and lack of network of communication systems for large vehicles;
- low investment attractiveness of agricultural sectors in Ukraine, which is mainly due to the imperfect regulatory framework and unstable political situation in the country;

– corruption component.

Constraining factors in the development of transport logistics are given in table 3.

Due to inefficient logistics, Ukrainian agricultural enterprises lose about \$ 20 USD per 1 ton of manufactured products, which in annual equivalent at the current turnover of Ukrainian exports reaches 600 million dollars USA. Currently, the cost of logistics in the agricultural sector of Ukraine's economy is 30% higher than in the US and 40% in the EU.

Therefore, as Ukraine, as a country with great agricultural potential, plans to increase its potential for exports of grain and other agricultural products in the near future, special attention should be paid to the effective development of agro-logistics. At the same time, due to inefficient logistics, agricultural producers receive lower purchase prices and, consequently, less profit, invest less in production, which in turn negatively affects profits and production volumes, which could later be transported by traders.

Table 3

Constraining factors in the development of transport logistics in Ukraine

Road transport	Railway transport	Water transport
– relatively high cost of transportation; – loss of time due to the accumulation of cars in ports during «peak» periods; – significant wear and tear of equipment and high depreciation costs due to low quality roads; – inefficiency of long-distance transportation	– state monopoly on services and property of most cars; – critical service life of grain wagons; – low capacity of railway stations in «peak» periods in ports, lack of state investment programs to update the fleet of grain wagons	– high capital intensity of development of own terminals and fleet; – low mobility and efficiency of transportation, limited transportation areas; – limited access to deep-water areas when placing the terminal

Logistics is still a «problematic» factor in agricultural entrepreneurship. This is a shortage of modern elevators, and low quality road infrastructure, insufficient investment in the modernization of rail and road transport, so in almost all parts of the process we have reserves to improve performance, and hence – for further growth. At the same time, only 44% of them can store grain for more than a year, and 80% of existing elevators need modernization in accordance with modern requirements. Due to the imperfection of the infrastructure, Ukrainian farmers annually lose from 15% to

30% of the harvest. Thus, the need for new storage areas remains very high, especially given the government's plans to increase the gross harvest of cereals and legumes to 100 million tons in the near future.

Currently, the sale of agricultural products for profit is a necessary final stage of any agricultural producer. That is why exhibitions-fairs of agricultural products, which are the movement of goods and money, are quite widespread: the buyer gets what he needs, and the seller – a material reward for the work done, reim-

bursement of production costs and the necessary financial resources for the next production cycle (purchase of seeds, lease of necessary equipment, etc.). But if auctions and commodity exchanges are relatively permanent events and institutions, then exhibitions and fairs are held less frequently, but with a clear frequency [9].

Among the exhibitions of agricultural and agro-industrial products, the main and largest event is the exhibition «Agro-...». It is held annually and allows producers to sell their products to customers (wholesale). However, its main purpose is to demonstrate the achievements of the national economy, establish contacts with foreign partners, solve industry problems (conferences, round tables to discuss various issues of agriculture and agro-industrial complex of Ukraine, agro-industrial products market).

Fairs are first of all entertaining and tourist action and secondly – trade. Therefore, successful and regular

holding of such events is not only the final link of agriculture and agro-industrial complex of Ukraine, but also raises the authority of the state, gives the opportunity to develop tourist resources and cultivate patriotism, preserve good old traditions and involve young people.

To participate in the fair, the participant must:

- draw up an application-agreement with the organizer; transfer funds; sign and provide the Agreement to the organizer;

- get a participant card and a car pass.

An important direction in the development of agricultural entrepreneurship is the development of agricultural service cooperatives.

As of January 1, 2019, the total number of agricultural service cooperatives was 1286 (Fig. 3).

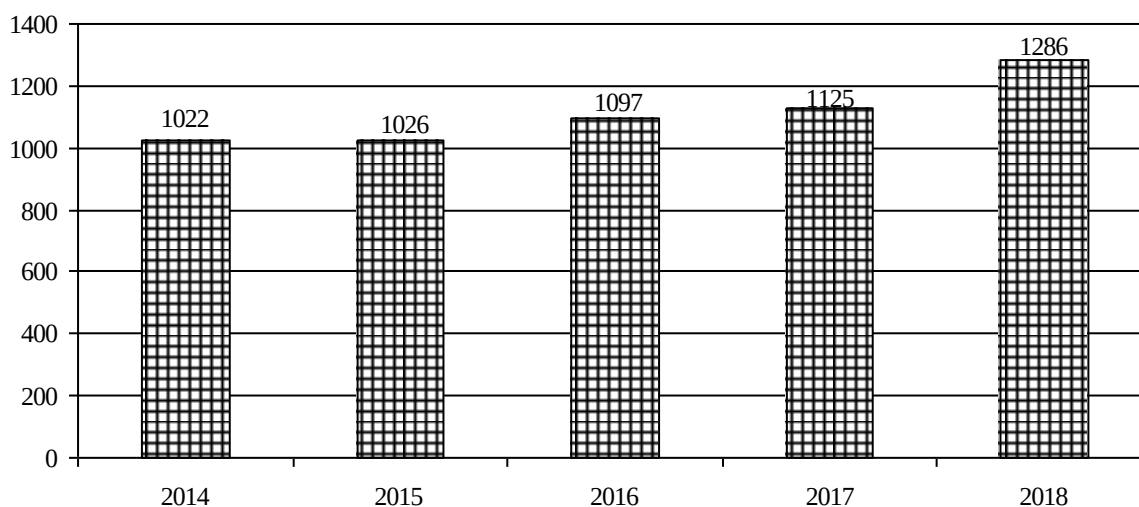


Fig. 3. Number of agricultural service cooperatives in Ukraine, 2014-2018

Source: compiled for [5; 13]

Most of the registered and operating agricultural service cooperatives are multifunctional, ie carry out more than one type of activity [7].

The largest number of working cooperatives is in the following oblasts: Ivano-Frankivsk region – 72 units, Cherkasy region – 67 units, Kyiv region – 58 units, Kherson region – 46 units. and Ternopil region –

31 units (Table 4).

Rivne (27 vs. 38 respectively), Sumy (33 vs. 47, respectively), as well as Vinnytsia and Zakarpattia oblasts, in which 67.0% of registered cooperatives do not operate, became the leaders of the anti-rating in terms of the share of non-working cooperatives declared in the documents.

Table 4

Availability of functioning agricultural cooperatives in the regions of Ukraine, 2018

Region	Agricultural cooperatives				
	processing	procurement and marketing	supplier	others	multifunctional
Vinnytsia region	1	11	–	–	10
Volyn region	1	–	–	2	14
Dnepropetrovsk region	2	8	–	1	12
Donetsk region	–	–	–	–	10
Zhytomyr region	–	2	–	1	15
Transcarpathian region region	2	–	–	–	1
Zaporozhye region	–	2	1	3	10
Ivano-Frankivsk region	1	19	1	6	45
Kyiv region	5	8	–	31	14
Kirovograd region	1	5	–	–	5
Lviv region	3	11	–	5	11
Mykolayiv region	–	1	–	–	10

Odessa region	–	10	1	–	6
Poltava region	–	10	–	–	8
Rivne region	–	2	2	1	6
Sumy region	–	1	–	2	11
Ternopil region	6	5	0	13	7
Kharkiv region	–	–	–	2	–
Kherson region	–	19	1	1	25
Khmelnitsky region	–	4	–	–	5
Cherkasy region	6	5	–	2	54
Chernivtsi region	–	7	–	3	7
Chernihiv region	–	–	–	–	12
Total	28	130	6	82	312

Source: compiled for [5]

Today, in terms of the volume and quality of services provided, agricultural service cooperatives do not meet the growing needs of agricultural producers and consumers. To successfully implement their functions, agricultural service cooperatives must become part of the infrastructure of the agricultural market, the development of which in Ukraine is quite slow.

The modern business environment, under the influence of information overload, in conditions of fierce competition and integration processes (formation of free trade zones, customs unions, etc.), requires rethinking conceptual approaches to further development, finding new mechanisms to enter promising markets for goods and services. The Chamber of Commerce and Industry (Chambers) plays an important role in these conditions. This is facilitated by the Chamber's activities through a number of its tasks, areas and providing a wide range of services in the field of agar entrepreneurship.

The Chamber of Commerce and Industry in Ukraine is a platform for the formation of business relations and communications between members and customers, on the one hand, and national and foreign consumers, business, government – on the other, using unique information technologies and business communications culture.

Over the years, the system of chambers of commerce and industry has proven its effectiveness in supporting business. The regional structure of chambers of commerce and industry includes the Central Chamber of Commerce and Industry of Ukraine and 25 regional chambers of commerce and industry. Today the system of chambers of commerce and industry unites in its ranks more than 8 thousand members.

The Chamber of Commerce and Industry of Ukraine is a member of the International Chamber of Commerce and the World Federation of Chambers, the Association of Chambers of Commerce and Industry of Europe.

Chambers of Commerce and Industry provide practical assistance to entrepreneurs in conducting trade and economic operations in domestic and foreign markets, promote the export of Ukrainian goods and services, for which they provide their members with a wide range of professional services, including consulting on foreign trade and market assessment, conduct independent examination of goods, assess movable and immovable property, intangible assets, provide bar cod-

ing services, patent and license services, draw up documentation to ensure the protection of intellectual property rights, etc.

Chambers of Commerce and Industry provide Ukrainian and foreign entrepreneurs with business and legal information, organize seminars, conferences, exhibitions in Ukraine and abroad, and provide business negotiations on economic issues. To promote the development of entrepreneurship in any industry at the Chamber of Commerce and Industry there are 20 sectoral committees: agro-industrial complex; in the field of energy efficiency; basic industries; small and medium business; manufacturers of building materials and construction; sphere of transport; the market of financial services and on issues of social responsibility of business; light industry; tourist and hotel industry; in the field of foreign economic activity; health and pharmacy; in the field of housing and communal services; tax; nature management and environmental protection; industrial partnership and research and production cooperation; on issues of assistance in combating corruption and corporate responsibility; on electronic communications; development of economic competition; industrial modernization; aviation committee; Commission for Protection against Unfair Competition.

Committees of Entrepreneurs work successfully in many regional chambers, promote the involvement of entrepreneurs in the scope of their activities and strengthen their influence on creating favorable conditions for entrepreneurial activity. There are 16 Export Support Centers in the system of chambers of commerce and industry in Ukraine, the main purpose of which is to create and operate effective information and service support of chambers of commerce and industry in Ukraine for export activities of Ukrainian enterprises in accordance with current legislation.

The main services of the Export Support Coordination Center: market research; construction of export strategy of the enterprise; product classification by product code; partner reliability check; assessment of the company's export potential; market entry conditions; analysis of competitors abroad; determining the uniqueness of the product on the market; organization and holding of business events on foreign economic activity.

Chambers of Commerce and Industry are a tool to intensify the development of agricultural entrepreneurship, which promotes the development of economic and trade relations with foreign partners.

Thus, the process of formation and functioning of the organizational and information component of the infrastructure for the development of agricultural enterprises faces obstacles and shortcomings of an institutional nature. Among them, such as: non-fulfillment by exchanges of the functions on definition of indicative prices; lack of arranged and accessible for rural entrepreneurs wholesale markets for livestock and fresh agricultural products, in particular, potatoes, vegetables, fruits, fish, dairy products, etc.; lack of cooperative centers for wholesale sales of agricultural products.

The solution of the outlined problems will ensure the effective functioning of agricultural enterprises, as it will increase the volume of sales of agricultural products, increase the number of consumers and increase the entrepreneurial image of goods and enterprises in both domestic and foreign markets.

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THE PUBLIC INVESTMENT ADMINISTRATION: COMPONENTS OF DIAGNOSTIC TOOLS

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Abstract

The purpose of the study is to determine the components of the tools of public investment administration based on the analysis of the development of methodology for assessing the quality and effectiveness of public investment administration over the past 20 years. The study found that since the 2000s, international organizations have developed and put into practice a number of tools for assessing the quality of public investment management, based on project life cycle assessment, integration of public infrastructure investment into the budget cycle, the formation of national indices (ratings) of efficiency public investment. Diagnostic tools can be used to determine the necessary measures to transform management to a qualitative level. However, the components of administration related to the areas of government regulation should not be overlooked as they may cause additional risks and losses.

Keywords: public infrastructure investments, project life cycle, quality assessment of investment administration, diagnostic tools, investment management efficiency index, public investments.

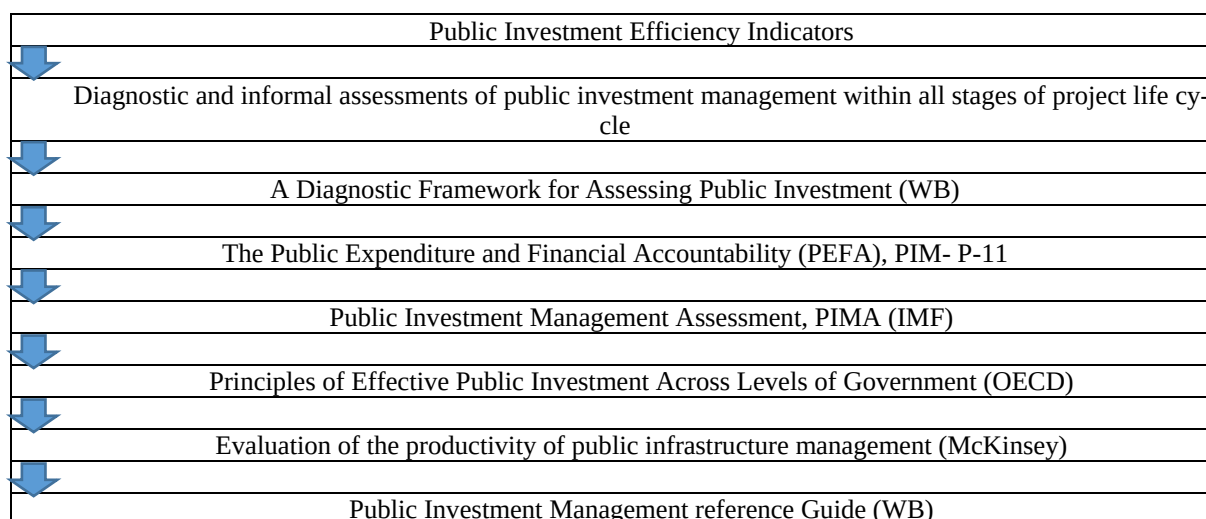
Investment management performance assessment tools are developed and implemented by the OECD, the IMF, the World Bank, and major consulting firms, including the McKinsey Global Institute. The evaluation covers not only countries receiving international development assistance, but also highly developed countries interested in receiving a high score, which provides advantages in competition for resources of the global financial market. In addition, the evaluation is designed to help make decisions: identify weaknesses in public governance investment in general and to eliminate them to prioritize reform measures.

In the early 2000s, the international evaluation of the efficiency of infrastructure investments was based on the methodology of evaluating the results and effectiveness of investment infrastructure projects with a focus on the availability and quality of services provided by infrastructure facilities, the ratio of results and asset values. And already in 2010 a methodology for diagnosing and informal assessment of public investment

management within the life cycle of infrastructure projects was developed [1; 2].

The international experience gained in the following years in diagnosing the quality of investment project management in different countries allowed in 2013 to formalize the assessment based on the calculation of management efficiency indices. In 2015, this system was integrated into the assessment of the quality of budget management, which provided consideration of the system of public management of public investment in the context of public (public) financial management [3].

In recent years, due to new challenges to stimulate private capital in infrastructure, the methodology for assessing public investment management has been supplemented with new positions (in particular, assessing the investment climate in the country, public promotion of private and foreign investment, etc.) and transformed in a comprehensive assessment of the effectiveness of public infrastructure management, regardless of the sources of its funding.



Picture 1. Development of assessment and diagnostic tools

After analyzing the figures in Fig.1. Methods and tools can be identified 3 most formalized and structured tools used to diagnose public investment management as a holistic system, not just infrastructure projects. We will consider these tools further.

Fundamentals of diagnostics for the analysis of the public investment management system. The task of identifying weak links in public management of infrastructure investments has necessitated the development of diagnostic tools for public investment management. In 2010, the World Bank published "Fundamentals of Diagnostics for the Analysis of the Public Investment Management System" [7].

The following eight basic principles for the proper quality of public investment management have been identified, covering the entire life cycle of projects:

1) availability of management in the field of investment, development of project proposals and preliminary screening;

2) conducting a preliminary evaluation of the investment project;

3) conducting an independent inspection of the preliminary evaluation of the investment project;

4) selection of projects and ensuring communication with the budgeting process;

5) proper implementation of the investment project;

6) ensuring procedures for making changes to the investment project;

7) proper commissioning of infrastructure facilities;

8) evaluation based on the results of the investment project implementation.

In the process of analysis, these principles become relevant components of the assessment, which must meet certain characteristics. According to the authors, diagnostics does not set the task of identifying the best practical solutions. Rather, its task is to identify basic (mandatory) institutional elements that would help deal

with key risks and ensure an effective systemic process of public investment management.

Based on the approaches developed in 2010-2013, the World Bank diagnosed the quality of public investment management in 37 countries [9], including seven economically developed countries and 30 developing countries. Despite the differences in the applied models of public investment management, in all 37 countries there are eight mandatory components of management.

Formalized assessment of the effectiveness of public investment management at all stages of the project life cycle (national indices, PIMI). In early 2011, the IMF released a study that presented methodological approaches to assessing the quality of public investment management based on the calculation of the Public Investment Management Performance Index (PIMI) [15]. These approaches to assessment were based on the methodology set out in the Fundamentals of Diagnostics. The authors formalized the procedure by introducing a point expert assessment and calculating on this basis the quality indices of public investment management.

studies of the quality of public financial management conducted in many countries according to the Public Expenditure and Financial Accountability Assessment (PEFA) methodology plays an important role in the development of new valuation methods, and was developed in 2003-2005. The World Bank together with the European Commission, the IMF and a number of countries (UK, Switzerland, Norway, France). The PEFA methodology uses 28 indicators that characterize all stages of the budget cycle.

As in the "Fundamentals of Diagnostics", the improved assessment of the quality of public investment management is carried out within the project life cycle, but is carried out in more aggregated stages of this cycle (four stages instead of eight used in the "Fundamentals of Diagnostics"):

- preliminary evaluation of projects;
- selection of projects;
- project implementation;
- evaluation after the end of the project.

Each stage has several components of evaluation. Totally seventeen components are used, including four components at the pre-project evaluation stage, five at the project selection stage, five at project implementation, and three at performance-based evaluation. The assessment of the quality of public investment management at each stage of the project is calculated as the mathematic mean of the sum of points for the relevant components. The PIMI index is also calculated as the mathematic mean of the set of estimates by stages of the project life cycle. Stage scores and the PIMI index range from zero to four points.

Assessments of the quality of public investment management by stages of the project life cycle allowed to identify areas in which it is advisable to take measures to improve the efficiency of management in all developing countries. Preliminary evaluation of the investment project and evaluation based on the results of implementation are recognized as such stages.

Evaluation of the effectiveness of public investment management based on integration into the budget

process. In 2015, the IMF's analytical note "Improving the efficiency of public investment in the G20 countries" [2] presented an updated version of the Public Investment Management Assessment (PIMA). Unlike previous versions, the new document assessed the quality of public investment management as part of the budget process. The need for such integration is explained by the close relationship of investment management processes with the management of other budgetary resources and the high dependence of investment projects on the effectiveness of public financial management in general.

PIMA includes three stages of evaluation:

1) planning of sustainable investment at all levels of the budget system (effective planning requires effective coordination of actions of all levels of government);

2) distribution of investments, direction of investments in priority sectors and projects (this requires a comprehensive, unified system of investment planning for the medium term, application of objective criteria and competitive procedures for evaluation and selection of investment projects);

3) implementation of projects in accordance with the plan and within the budget (timely cost-effective implementation of projects requires conditions that ensure full funding, transparent monitoring, effective management).

Each of the evaluation stages consists of 15 evaluation elements that characterize the process of planning, allocation and execution of investment costs within the budget process (three basic imperatives with mandatory elements). These scores have scores ranging from zero (no key characteristics are met) to ten (all 45 key characteristics are met). The total score is calculated as the arithmetic mean of the sum of the scores. All elements of the assessment have the same weight.

Given that the PIMA methodology, compared to previous versions, provides a more comprehensive, integrated into the budget process of assessing the quality of public investment management, the World Bank and the IMF have agreed to share it in future work. The application of a single methodology will avoid duplication in conducting assessments of the quality of public investment management in different countries.

In 2018, the IMF together with the World Bank updated the RIMA methodology based on the analysis of the practice of RIMA2015, clarifying the institutional components of the three basic imperatives of public investment management - project preparation, selection and implementation, and supplemented the requirement to analyze the quality of cross-cutting institutional elements. legislative framework, capacity of staff with clear definition of roles and areas of responsibility [8].

Principles of effective public investment at all levels of government (OECD Council Recommendations 2014)

These OECD Recommendations are a tool developed on the basis of international norms and standards to implement best practices and principles to improve the effectiveness of public investment at all levels of government.

The OECD Recommendations on Effective Public Investment call for the introduction of 12 principles that shape a holistic nationwide approach to public investment and encourage improved investment prioritization mechanisms at all levels of government. The principles are based on 3 major elements of public investment management at all levels of government: (1) coordination of public investment at all levels of government and policy, strategic planning; (2) Strengthening public investment capacity and supporting experiential learning at all levels of government; (3) Ensuring appropriate framework conditions for public investment at all levels of government (adapted fiscal mechanisms, transparent medium-term budgeting, transparency of public procurement, quality and consistency of regulatory systems).

All these tools focus mainly on two groups of management components: (1) components that are closely related to the budget process: planning, allocation, control of implementation or use of budget funds; (2) cross-sectoral components: IT tools, staff skills, data transparency and openness, coordination / information exchange, legal framework.

At the same time, it is expedient to single out the third group of important components, the inefficiency of which creates risks for project implementation and weakens the functioning of the public investment management system. These equally important components should focus on related areas of government regulation: land relations, construction legislation, licensing, tariff regulation, public service standards and norms, banking supervision, labor relations, and contractual relations.

The components of the third group are considered more by methods that are based on the project cycle and the main subject of evaluation of which is the infrastructure project.

In terms of economic stimulation, the quality of public investment administration based on basic imperatives plays an important role.

However, the components of administration related to the areas of government regulation should not be overlooked as they may cause additional risks and losses.

These areas are assessed in more detail in the world rankings such as Doing Business, Competitiveness Index, Corruption Perception Index, Human Capital Index and others.

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METHODOLOGICAL FOUNDATIONS OF A COMPREHENSIVE STUDY OF THE ECONOMIC SECURITY OF THE RUSSIAN FEDERATION**Karataeva T.***Ph. D., associate Professor of FEI, North-Eastern Federal University named after M.K. Ammosov, Yakutsk***Atakova A.****Nalgiyeva Z.***student FSAEI HPE "North-Eastern Federal University named after M.K. Ammosov", Yakutsk***МЕТОДОЛОГИЧЕСКИЕ ОСНОВЫ КОМПЛЕКСНОГО ИССЛЕДОВАНИЯ ЭКОНОМИЧЕСКОЙ БЕЗОПАСНОСТИ РОССИЙСКОЙ ФЕДЕРАЦИИ****Каратаева Т.А.***к.э.н., доцент ФЭИ ФГАОУ ВПО «Северо-Восточный федеральный университет имени М.К. Аммосова», Якутск***Атакова А.Н.****Нальгиева З.М.***студенты ФГАОУ ВПО «Северо-Восточный федеральный университет имени М.К. Аммосова», Якутск*

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Abstract

The article defines the essence and understanding of economic security; characterizes external threats; shows threshold values; in this connection, the main directions for strengthening economic security were formulated.

Аннотация

В статье определена сущность и понимание экономической безопасности; дана характеристика внешним угрозам; показаны пороговые значения; в связи с чем были сформулированы основные направления по укреплению экономической безопасности.

Keywords: economic security, external threats, internal threats, thresholds, shadow economy.

Ключевые слова: экономическая безопасность, внешние угрозы, внутренние угрозы, пороговые значения, теневая экономика.

Обеспечение экономической безопасности является неотъемлемым условием благополучия и процветания общества и государства.

Наряду с этим проблема обеспечения экономической безопасности стала как бы всеобъемлющей и широко актуальной задачей всего общества.

Решение поставленных задач в рамках исследования данной проблемы, требует теоретического обоснования и разработки ряда новых показателей, позволяющих описывать и анализировать базисные тенденции экономической безопасности России и пути ее обеспечения, а также подходов и механизмов обеспечения экономической безопасности. Все вышеизложенное обусловило необходимость проведения исследования теоретических и методологических основ экономической безопасности Российской Федерации.

Целью настоящей работы является изучения экономической безопасности Российской Федерации.

Поставленная цель предопределила решение следующих основных задач:

- обобщить и раскрыть теоретические подходы экономической безопасности;
- определить методологические основы комплексного исследования экономической безопасности Российской Федерации;

- разработать предложения по совершенствованию правового регулирования экономической безопасности.

Необходимость и уровень экономической безопасности Российской Федерации определяется наличием и степенью внешних и внутренних аспектов (угроз) безопасности для экономической самостоятельности и экономических интересов.

Внешние угрозы могут исходить со стороны федеральных органов государственной власти путем принятия законодательных и нормативных актов.

Внешние угрозы могут быть и со стороны отдельных субъектов и Регионов РФ, которые являются поставщиками или потребителями жизненно важных товаров, особенно нефтепродуктов, товаров народного потребления, продуктов питания. Поэтому очень важно организовать экономические связи с другими регионами на договорной основе.

Внешние угрозы существуют и со стороны иностранных государств, в том числе ближнего зарубежья, а также иностранных фирм и международных финансовых институтов в невыгодных формах для республики контрактов и договоров на разработку природных ресурсов, на организацию строительных и иных работ и др. [3, 4].

Внешние угрозы являются наиболее опасными, их труднее избежать или нейтрализовать в отличие от внутренних.

Как к внешним, так и к внутренним угрозам следует также относить экономическую преступность, проявляющуюся в самых разных формах и отраслях. Ориентировочно подсчитано, что годовой экономический ущерб от экономической преступности достигает 500-700 млн руб. В масштабах экономики это весьма значительная величина, которая может возрасти в результате ослабления целенаправленной правоохранительной деятельности государствах [2].

Критерием (мерилом) экономической безопасности является самостоятельное устойчивое развитие самодостаточной экономики, обеспечивающее постоянно растущие разумные потребности населения в материальных условиях для активной жизнедеятельности. Его количественным выражением может быть сбалансированность социально-экономического развития страны по материальным, финансовым, природным и трудовым ресурсам (Р). Нормативная обеспеченность ресурсами расширенного общественного воспроизводства в динамике на 5 лет и более рассчитывается по формуле:

где - нормативная потребность в основных ресурсах;

- наличные или прогнозируемые основные ресурсы.

Общие индексы сбалансированности экономики по материальным и финансовым ресурсам

определяются по сумме их стоимости.

Критерием экономической безопасности РФ можно считать также отсутствие или минимизацию совокупности внешних внутренних угроз.

Кроме того, можно согласиться с тем, что обеспечения экономической безопасности важное значение имеют не сами показатели, а их пороговые значения. Они выражают предельные величины, при несоблюдении значений которых наступает реальная угроза экономической безопасности [4]. Степень угрозы экономической безопасности оценивается по трем уровням пороговых значений: критическому, предкризисному и кризисному (распад системы жизнеобеспечения). На наш взгляд, наиболее удачно рассмотрены пороговые значения угроз экономической безопасности в работе Е.Г.Егорова [4]. Приведем указанные угрозы в таблице 1.

Из таблицы видно, что техническая надежность системы жизнеобеспечения, характеризующаяся износом основных фондов на уровне 40-50%, считается критической, поскольку бесперебойное функционирование системы возможно только в случае, если обеспечивается текущий ремонт. При износе 75% многократно возрастают затраты на текущий ремонт, а свыше 76% затраты не удается компенсировать текущим, ни капитальным ремонтом, и, следовательно, наступает кризисная ситуация и т.д.

Таблица 1

Пороговые значения угроз экономической безопасности

Индикатор	Критический	Предкризисный	Кризисный
Износ основных фондов социальной сферы и энергетического хозяйства, %	40-55	56-75	76-100
Финансовая безопасность, %	10-50	51-120	Свыше 120
Продовольственная безопасность, в% от нормативной потребности	До 20	21-40	Свыше 40
Энергетическая безопасность, % от нормативной потребности	До 10	11-25	Свыше 25
Уровень доходов населения, % к прожиточному минимуму	140-120	120-100	90 и ниже
Уровень безработицы, %	До 5	6-10	Свыше 10

При анализе проблем безопасности на федеральном уровне в последнее время все большее внимание уделяется экономической преступности т.е. система экономических отношений, которая складывается в обществе вопреки законам, правовым нормам и формальным правилам хозяйственной жизни [2].

Важная роль в обеспечении правопорядка и безопасности государства отводится органам внутренних дел.

Нельзя не отметить и негативные процессы, вызванные ростом организованной преступности в России и в ее отдельных регионах, что является элементом экономической безопасности.

Юридическим критерием экономической безопасности является состав преступления.

К сожалению, растущие масштабы криминализации общества превращают преступность в одно из самых серьезных негативных явлений сегодняш-

него времени. Поэтому государство обязано для защиты в этом направлении принимать все необходимые усилия.

Следует считать, что борьба с экономическими преступлениями – это одновременно одна из основных составляющих экономической безопасности законопослушных предприятий и предпринимателей [1].

Профилактика экономических преступлений и борьба с теневой экономикой еще не стали значимым направлением в деятельности правоохранительных органов. Одной из проблем борьбы с коррупцией и взяточничеством является их низкая раскрываемость.

Существующая сегодня статистическая информация не позволяет в должной мере учесть показатели теневой экономики. Между тем результаты проведенного нами исследования свидетельствуют, что на ее долю приходится весьма

значительная часть доходов, не отображаемая в официальной статистике.

Защита экономики от преступных посягательств, как уже было отмечено выше является одной из стратегических задач государства, его правоохранительных и контролирующих органов, в первую очередь МВД России, выступающего в качестве ведущего субъекта обеспечения экономической безопасности страны.

Исследования показали, нетрудно заметить, что основными путями укрепления экономической безопасности и защиты жизненно важных экономических интересов страны являются сферы ее экономического, социального, финансового и нормативно-правового развития.

Но сегодня нельзя не отметить, что, одним из ведущих факторов криминализации экономических отношений является коррупция, которую можно рассматривать как метод, с помощью которого экономическая преступность проникает в государственные и общественные органы в целях перерождения и нейтрализации соответствующих органов борьбы с этой организованной преступностью.

В данном направлении представляется важным поиск новых идей и взглядов на национальную безопасность, на роль государства и общества в ее обеспечении. Все это весьма важные вопросы, от которых и зависит безопасность экономики. А значит, и безопасность человека, общества, государства и природы.

Важнейшей составляющей динамично развивающейся экономики страны являются подготовленные кадры, способные анализировать и предупреждать возникающие в сфере экономики угрозы, адекватно реагировать на агрессивность преступной среды, в рыночных условиях. Причем речь идет не только о специалистах, задействованных в службе безопасности или аналитическом отделе фирмы, но и сотрудниках правоохранительных органов, представителях исполнительной власти.

Таким образом, рассматривая данную проблему в представленной работе, нами, были исследованы проблемы экономической безопасности, определены основные направления обеспечения экономической безопасности страны.

Результаты данной работы базируются на масштабном фактическом материале, всесторонне характеризующем изменения, произошедшие в ходе экономических реформ в реальном секторе российской экономики и экономической преступности.

В работе показано, что категория экономической безопасности является важным и неотъемлемым элементом современной науки и нуждается в специфических методах исследования.

Как нам представляется, акцент в борьбе с организованной, в том числе и экономической, преступностью лишь на методах силового воздействия недостаточно перспективен. Об этом же свидетельствует отечественная и зарубежная практика. Включение механизмов самоорганизации, духовного самоочищения общества на основе возрожденных ценностей (традиции, правила поведения, идеалы и т.д.) безусловно, может уменьшить социальную базу преступности, создать условия для эффективного контроля над ней со стороны государства и общества.

Вопросы обеспечения экономической безопасности всегда были актуальны для российской экономики.

Для стабилизации экономики России также необходимо использовать все доступные государству методы налоговой, денежно-кредитной, бюджетной, таможенной, валютной, социальной и ценовой политики.

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FORMATION OF COMPETITIVENESS OF SUPPLY CHAINS OF AGRICULTURAL ENTERPRISE

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Abstract

Dynamic development of agroindustrial complex is conditioned by economic transformations of present time. Main system-forming the constituent of this process is a competition that determines all the totality of inherent to the market economy elements. For the permanent functioning of agriculture in these terms of the special value acquire the question of development of competition environment, as the economic are certain in him, scientifically are economic, productive, marketing feasibilities of both separate producers and national economy on the whole.

In these terms development of practical recommendations in relation to directions of improvement of control system by the competitiveness of supply chains of agricultural enterprise is actual enough.

Keywords: management, competitiveness, strategy, supply chains, logistics systems, optimization, planning.

The formation of the competitiveness of agricultural enterprises takes place in the conditions of deepening integration relations with European countries. Agricultural producers face the problem of production, which must meet the requirements of the European market, which provides for the stability of production and compliance with quality and safety to international standards. Measures taken in this direction at the state level have led to a certain stabilization of domestic agricultural production.

However, a number of issues related to increasing the competitiveness of enterprises in the context of deepening European integration processes remain unresolved, namely: production of the main types of products that are competitive in the foreign market; providing the population with competitive products of domestic producers taking into account the volume of imports, creating a system of efficient marketing and compliance of its quality with market requirements, etc. It should be stated that only a competitive enterprise can produce competitive products.

In Ukraine, under certain conditions of existence and development of a market economy, the role of the efficiency of the enterprise of all forms of ownership as an integral part of the system of economic information and management is growing.

Today the task of developing mechanisms of the state agrarian policy to increase the efficiency of using the existing potential of the agricultural sector of the economy is acute for Ukraine. To this end, special attention should be paid to creating conditions for its institutional support, which primarily involves the development of rural areas, the formation of mechanisms of interaction between the state and agribusiness, development of agricultural advisory in the form of information and advisory assistance to agricultural producers and rural population. small-scale agricultural production, agricultural cooperation to ensure the integration of personal households in the market mechanisms of the agricultural sector of the economy [1].

In these conditions, enterprise management requires systematic information about the implementation of economic processes, their nature and scope, the availability of material, labor, financial resources and their use. An important attribute of a market economy is the competitiveness of the enterprise. The study of the competitiveness of the enterprise in the current economic situation in Ukraine, allows us to consider it as a comprehensive description of the potential opportunities to ensure competitive advantage in the future, which is available for review (10-15 years). In the Commercial Code of Ukraine (Article 25) competition is understood as competition between economic entities, which provides due to their own achievements to obtain certain economic advantages, as a result of which consumers and economic entities have the opportunity to choose the

necessary goods, and some sub economic entities do not determine the conditions of sale of goods on the market [2].

Tkachuk O. M. and Savrasova O.O. note that today the problem of competitiveness management has become extremely important for modern entrepreneurs, because the global crisis has exacerbated the difficult situation in the competition between enterprises. In the absence of adequate and timely assessment of the level of its own competitive potential, identification and analysis of factors directly affecting the competitive position of the enterprise, its management makes it impossible to develop and implement a strategy for the existence and functioning of the organization [3].

An effective competitive environment in a market economy contributes to the efficient allocation of resources that meet the interests of consumers. Market forces encourage the reduction of production costs, the introduction of intensive technologies, the production of fundamentally new types of products and the improvement of marketing strategies. However, the uncontrolled action of market factors can lead to devastating consequences. Today in Ukraine the problems of food security of the population are exacerbated. An increase in the volume of imported goods is observed even in the main types of agricultural products - grain, sugar, meat, fruit and others. Thus, important tasks are the development of mechanisms for regulating the system of agricultural markets and supporting domestic agricultural enterprises - producers of agricultural products. In the formation of competitive advantages of agricultural enterprises, the efficiency of the use of economic resources plays a crucial role. Competitive advantages are a list of factors characteristic of a certain industry that give it an advantage over other industries, as well as some enterprises in the industry over others. These factors are not constant, they change depending on the characteristics of industries, market segments served, as well as the time and stage of the "life cycle" of the industry and enterprise. Each industry has its own specific requirements for the combination of competitive advantages, but for the development of the enterprise of any industry, each of them can become an instrument of victory in competition [4].

Thus, for agricultural enterprises, the consequences of technological and managerial miscalculations are a lag in the indicators of crop yields and animal productivity. For example, hopes for one cow in Ukraine are 3793 kg, in Germany - 6107 kg, in Great Britain - 6794 kg, in the USA - 9343 kg. Meat production per 100 hectares (in slaughter weight) in Ukraine in 2019 amounted to 51.7 quintals, the United States - 105 quintals, Germany - 227 quintals, the United Kingdom - 191 quintals.

Thus, the degree of economic survival and adaptation of agricultural market participants to increased global requirements will determine the level of competitiveness of products, which is a variable in

qualitative and quantitative characteristics. Qualitative parameters of products (selling price, cost), which are taken into account in the face of competition, are the main criteria for the buyer. This is especially important in connection with the expansion of the introduction of new energy-saving technologies for agricultural production, the quality of which in Ukraine, according to research, is significantly deteriorating.

Competitiveness of production on its qualitative characteristics, firstly, increases competitiveness of the enterprise as the subject of the market, secondly, provides the higher profitability of manufacture, promotes an exit of market subjects to the foreign market, more completely satisfies needs of a society [5].

Among the manifestations of success of agricultural producers in competitive conditions are adequate income from agricultural activities without

the need to find additional earnings, adherence to rural lifestyles, the ability to withstand difficult market and weather conditions, the presence of a steady upward trend in sales, assets and land use, as well as the possibility of transferring property to descendants.

The ability to enter the international market is determined by internal factors (nature and uniqueness of the company's competitive advantage - product properties, high level of technological processes, well-known brand, organizational structure, availability of resources), industry specifics (competitive structure, initial market size and growth prospects), quality and costs of means of production, marketing infrastructure, entry and exit barriers), as well as the characteristics of the enterprise and the country (political, economic and socio-cultural characteristics - government policy, legal norms, practice of standards and control, local tastes and preferences, geographical location).

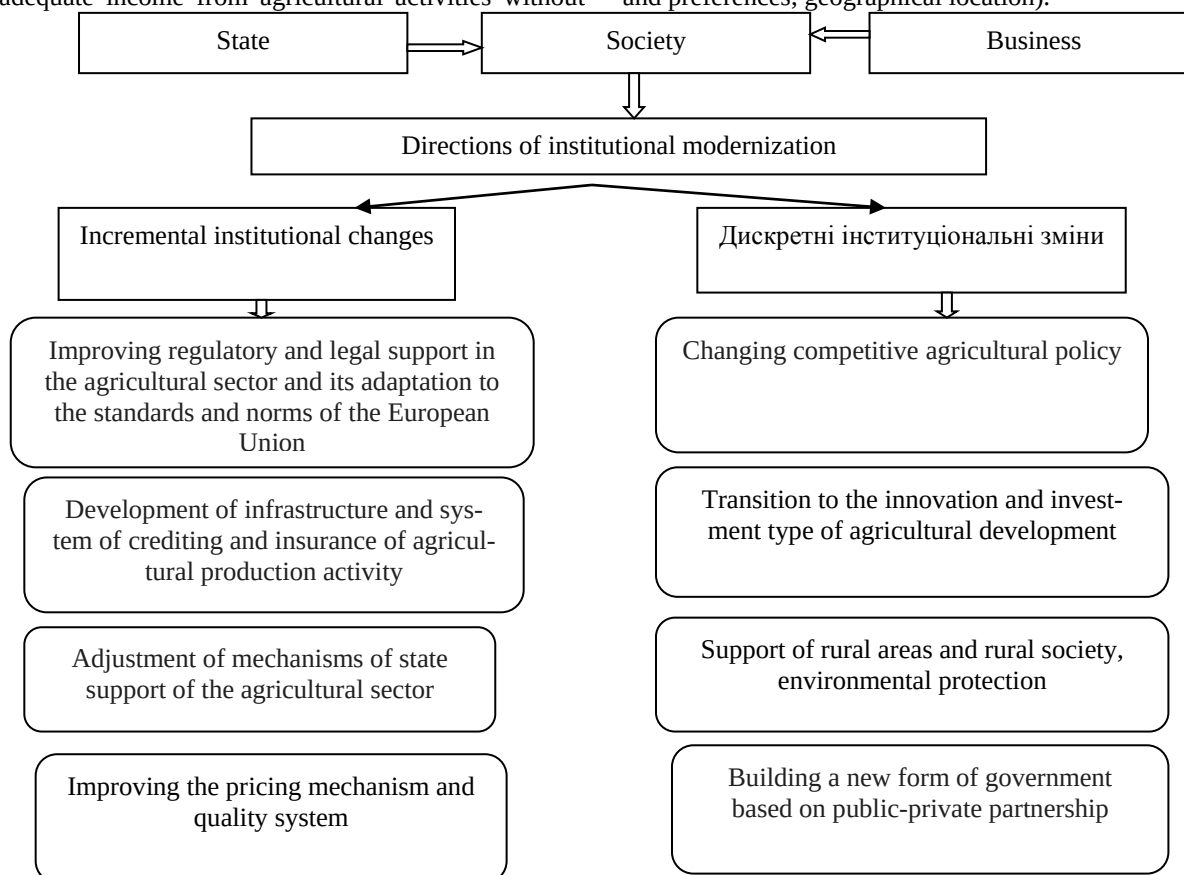


Fig. 1. Directions of institutional modernization in the agricultural sector [6]

Determinants of competitiveness in the international market are the provision of economic resources (means of production, technology, investment in human capital, management skills), product characteristics, firm strategies and industry structure, control over distribution channels, infrastructure and availability externalities, legal environment, trade policy.

Achieving the targets of modernization of agricultural policy is accompanied by incremental (related to "adjusting" existing institutions to the new institutional environment, which may manifest itself in changing some attributes of the institute, their adjustment, changing the scope of the institute or their subordination to other norms) and discrete (leading to significant trans-

formations of the institutional environment, the formation of new institutions) institutional changes. And the subjects of institutional change should be all parties interested in the modernization of the agricultural sector (Fig. 1) [6].

Agricultural enterprises-producers of agricultural products are the most vulnerable link in the food chain in the agricultural market. They are under economic pressure from enterprises of the processing industry, retail trade, and enterprises-suppliers of means of production. This problem can be partially solved by developing a cooperative movement and improving methods of state regulation of food markets and subsidy mechanisms.

In a developed market economy, the sphere of direct and indirect management by the state of economic processes in the agricultural sector, including innovation development, is much smaller and its role is more to create and maintain conditions for effective development of all agricultural sectors. At the same time, the implementation of the forecasting function acquires special significance as the need to ensure the stable position of agricultural entities in the constantly changing market environment for the near and distant periods.

At the current, very difficult and very responsible stage of development of the agricultural sector of Ukraine's economy, the state should not only act as an institutional innovator, which constitutes the direction of socio-economic transformations in the agricultural sector through changing agricultural policy, but also be an effective player in the agri-food market. at the expense of budgetary resources and on the basis of PPP) development of business and innovation and social infrastructure in the sector.

- Accordingly, the main efforts of institutional and innovative modernization, the agricultural sector of the economy, having as a priority the creation of competitive domestic production and the development of all areas of agricultural relations, should be aimed at:

- building a sustainable institutional structure with open competitive access to resources, which will reduce the level of uncertainty in the economic environment and, thus, simplify the interaction of all participants in the agricultural sector, make them transparent and understandable;

- Improving the system of land relations and protection of property rights, which will increase the investment attractiveness of agricultural production, rational use of agricultural land and will determine the priority measures for their protection;

- ensuring the functionality and efficiency of the infrastructure of the agricultural sector and creating equal economic conditions for access to it for various organizational and legal forms of management;

- development of innovative processing enterprises, which due to the introduction of new technologies will make it impossible to monopolize and compete with intermediaries;

- - deregulation of agribusiness activities, which involves the elimination of excessive government regulation, simplification of the conditions for conducting agribusiness, promoting investment and initiatives in the agricultural sector;

- - implementation of long-term specialized (not moved to other sectors with equal return) investments, first of all investments in improvement of scientific-technological and scientific-technical base and innovation infrastructure;

- construction of an innovative model of economic development, which will provide incentives to change the economic behavior of agricultural entities;

- - stimulation and support of agricultural science and innovation clusters aimed at the production of export-oriented products;

- - harmonization of the interests of owners, employees and rural communities, which will contribute

to the formation of socially responsible behavior among all participants in the agricultural sector;

- - sustainable economic development of rural areas and conservation of natural resources, which will affect the quality of life of the rural population [7].

Thus, the development of international markets has a direct positive impact on the domestic situation and income of agricultural enterprises. To do this, it is necessary to achieve coherence between foreign trade and agricultural vectors of economic policy, which contributes to strengthening their efficiency. After all, given the weakening of the economic opportunities of agricultural enterprises, programs to stimulate foreign economic activity will be ineffective. At the same time, government programs to enter foreign markets and provide export credit guarantees can help increase market potential. Successful development of foreign markets is the basis for improving the investment climate, sustainable economic growth and long-term prospects for the development of the agricultural sector of the economy [9].

The successful functioning of the subjects of economic relations in a market with relatively intense competition, their potential to strengthen their market position is due primarily to the price and quality parameters of the products that these entities produce. However, it should be noted that a necessary condition for the proper level of competitiveness of enterprise products is the effective organization of such processes as business planning, procurement, production, storage, sales.

In today's business environment, the key to success is speed, efficiency and transparency. Effective management of technological and work processes, designed to strengthen the position of the enterprise, allowing to benefit from all functional spaces: from supply (in the context of increasing profitability by optimizing regulations and outsourcing working capital) to the struggle for consumers by introducing effective methods of distribution logistics.

The globalization of markets for raw materials and high value-added products, a developed system of global redistribution of the product of scientific and technological evolution (equipment, technology and other intangible assets) requires business entities to take a holistic approach to planning and optimizing logistics networks.

Undoubtedly, customer management must develop and integrate accordingly. This means that managers today face the non-trivial task of finding ways to effectively combine the necessary operational adjustments aimed at reducing costs, with the established preferences of their customers, usually skeptical of unpredictable changes [8].

As for a constructive approach to defining the concept of supply chain, it is based on the principles of separation of the system from the environment by:

- a) decomposition of the supply chain into a set of constituent elements, determination of system-forming inter-element connections and relations that ensure the integrity of such a set;

- b) a generalized representation of the supply chain, which distinguishes only its individual elements, which are considered essential for solving the problem

of its formation (supply, production, distribution) and which have different functional and administrative subordination.

The supply chain covers all organizations and activities related to the movement and transformation of goods, from the stage of raw materials and raw materials to the delivery of finished products to the final consumer, as well as related information flows. Materials and information move up and down the supply chain. According to this definition, the supply chain includes information systems management, sourcing, procurement, production scheduling, order processing, inventory management, warehousing, customer service, and after-sales recycling of packaging and materials [10].

Researchers give the following definition of the supply chain: a) according to an objective approach, the supply chain is a related structure of business units, which is united by the relationship "suppliers - focus (main) company - consumers" in the process of creating and selling goods that have value for the final consumer, in accordance with market requirements;

b) according to the process approach, the supply chain is a sequence of flows and processes that take place between different counterparties (links) of the chain and are combined to meet the requirements of consumers in goods and services. According to the analysis of the most common interpretations of the term "supply chain", almost all of them are based on the concept of flow and flow process. On this basis, when considering supply chains, it is possible to identify two fundamental features of a systemic nature:

first, the supply chain must provide for movement;

secondly, the supply chain must be subject to such movement [9].

Yatsiv I. expands the idea of this concept, formulating it as follows: "This is a form of trade, which is based on the shipment of goods to the buyer on a single document. In the interaction of a limited number of linearly ordered participants in the movement of goods, bringing products to the consumer, there is a supply chain, or logistics chain. The number of links, ie the length of the chain, determines the number of intermediaries between the source supplier and the final consumer.

Thus, supply in the context of supply chain research should be considered as a set of functions and operations aimed at solving a number of important problems of interaction of market participants - from reducing non-production costs and optimizing the use of resources to achieve strategic compliance with consumers [11].

The relationship between the strategy of the enterprise (the leader of the enterprise network) and the strategy of the supply chain can be schematically depicted as in the figure 2.

In the case of consumer goods, it acts in distribution, not in production.

When analyzing supply chains, and especially global supply chains, it is important to consider two phenomena:

1. General price pressure, which forces supply chain leaders to continuously focus on lower prices, even when the competitive strategy is focused primarily on quality or delivery time;

2. Concentration of profits in one link of the value chain.

The search for compromises between conflicting goals precedes the development of balanced project implementation measures. Their essence should not contradict the principle: the best is the enemy of good. Managers who are responsible for making decisions about the implementation of software elements should take into account all the pros and cons [12].

Today, it is of fundamental importance for companies participating in the supply chain to understand the fact that the weakest link in the chain determines the level of overall success in the market. "The productivity of supply chains directly determines the productivity of the enterprise," says D. Lambert [13].

Technically, this can be explained by the example of the principle of compensation in planning. Traditionally, he explained the peculiarities of only the internal environment of the enterprise.

Today, the concept has expanded to include internal and external supply chains. Obviously, this situation requires increased attention to the possibilities of collaboration between enterprises participating in supply chains in order to move the "bottleneck" to a higher level of quality of functions performed within a single chain.

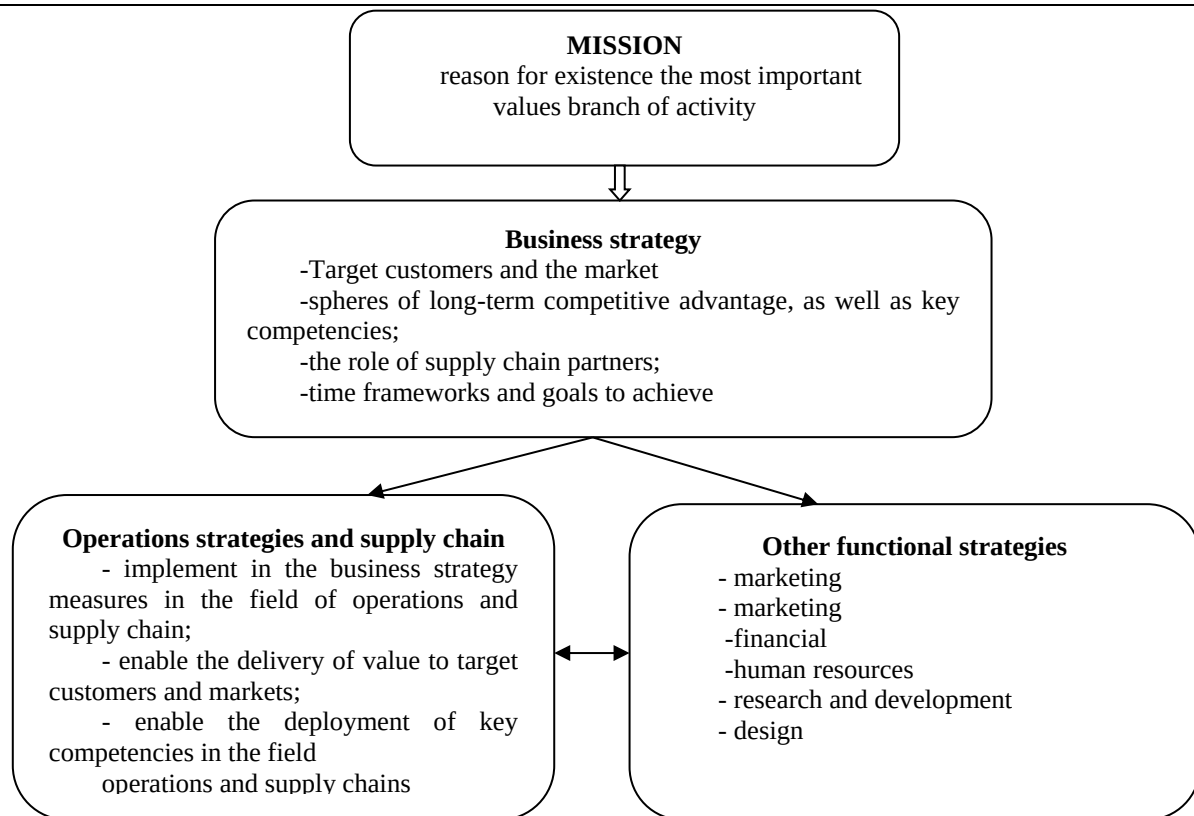


Fig. 2. Supply chain strategy in the company's strategy [11]

All modern integrated supply chains are customer-oriented and demand-driven. They will differ only in the degree of adaptation to changes in demand (including the turning point) and what attributes and to what extent are used in competition. The strategy of the chain must be consistent with the strategy of the corporation or other network of enterprises and with the strategy of the chain leader. Using the formulated list of factors influencing the formation of supply chains, it is possible to build a general model of factors that determine the strategies of supply chains (Fig. 3).

As a result, all enterprises face the need for constant and effective planning and precise control of material and information flows, starting with procurement and implementation. As an illustration, sales plans are often made using inadequate forecast expectations and with the omission of assessing their feasibility, as a result, companies find themselves in a situation of need to manage excess stocks or cost incentives "bottle-necks". In addition, production and procurement are often unable to respond flexibly to fluctuations in demand [8]. Як наслідок, на виході підприємства мають гірші у порівнянні з очікуваними результати та накопичення надлишкових потужностей.

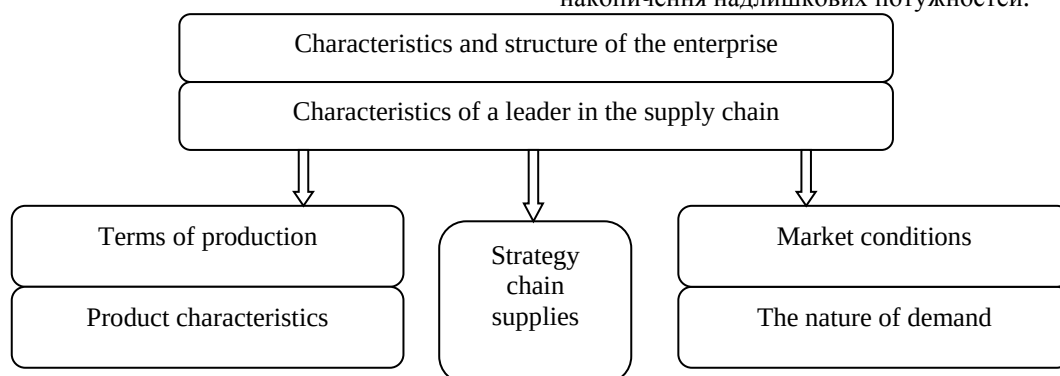


Fig. 3. Factors influencing the choice of supply chain strategy [13]

Therefore, more and more often managers have to look for answers to the following questions:

- how to create a consistent balance between logistics space (storage, production and transportation capabilities, etc.) and demand space, taking into account production schedules, costs and level of service;
- how and at what point in time the logistics space should be increased or decreased [15].

Leading organizations strategically address these issues by organizing the planning process taking into account the characteristics of their partners and relationships with them. Thus, the tactics of long-term improvement of consistency and transparency of business process management, aimed at identifying and eliminating "bottlenecks" and delays, are being implemented. The main challenge in this context is the need

for economically sound and flexible integration of data on partners (suppliers, logistics providers, distributors, etc.) in their own systems of planning procurement, production, sales, transportation and, accordingly, the creation of unified, consensus-based plans [16]. In the context of globalization, several fundamentally different forms of strategic partnership in the supply chain may be appropriate (Fig. 4).

In order to develop an understanding of the leading role of supply chain management as a defining part of the business process system of enterprises, the transition from a widespread functional approach to supply chain research to a process-oriented way of thinking

and seeing is essential. The impact of a process-oriented vision of enterprise success cannot be detected other than through the observation of operating practices. This is confirmed by scientific studies that examine the factors that have a significant impact on the company's success, and demonstrate the fact of direct and close dependence of market success on the observation and improvement of key business processes. In this context, it should be noted that in terms of increasing competition as a result of increasing globalization, economic crises, etc., business entities seek to benefit from every potential opportunity to increase their economic sustainability and, ultimately, optimize the value creation process.

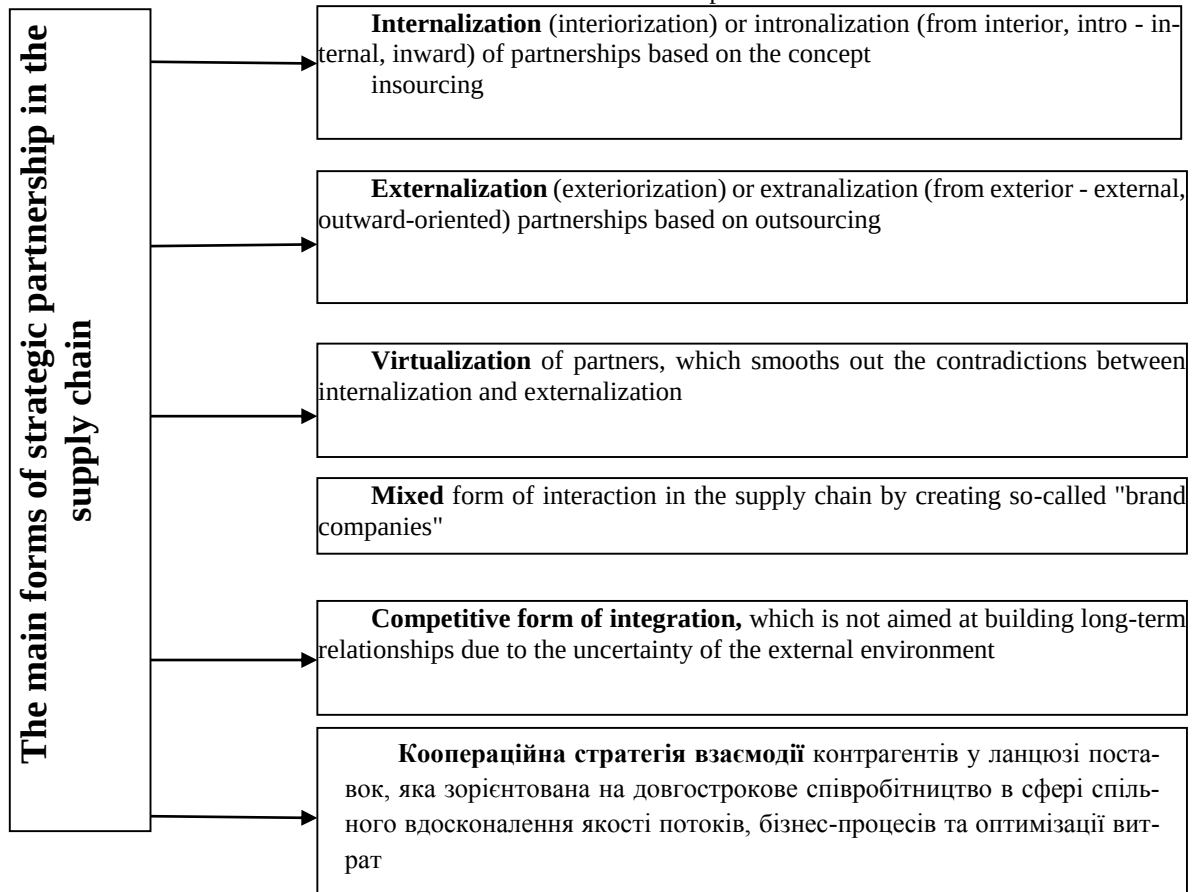


Fig. 4. The main forms of strategic partnership in the supply chain [14]

However, these efforts will inevitably be accompanied by a characteristic problem: optimization in a particular area (eg by reducing inventories) will have only a limited effect if the movement in a certain direction (eg increase / decrease in purchases) is not properly coordinated and adapted to changing market conditions [17]. As a result, overall flows of materials and information need to be explored in the context of a real efficiency tool. This conclusion proves the need to identify and eliminate the weakest links in the supply chain.

As a rule, two obstacles stand in the way of the practical implementation of the above-mentioned management strategy:

first, the need to organize interdepartmental activities - isolated analysis and optimization are ineffective, but it is necessary to establish coordination of local counterparts;

second, operational improvement and cost reduction measures fall under the category of conflicting objectives and should therefore be considered simultaneously.

In this context, the goal of the highest level is to achieve a balance of stocks, production and transport capacity (supply side) and consumer needs (demand side). In other words, the main goal is to determine where and when the supply side should be reduced or increased in order to meet the demand side as clearly and expeditiously as possible. Appropriate control and coordination of the supply chain in the form of work, material and information flows can be simplified and called "supply chain management" ("Supply Chain Management" (SCM)). This should help the company compete successfully with competitors' supply chains. Relatively recent trends in business processes have led to the creation of numerous so-called virtual networks,

in which the design of a virtual enterprise is a focal point, or, in other words, a temporary merger of key competencies of the enterprises involved. The object functioning in this way is perceived by the client as a single block. At the same time, the internally virtual enterprise is not characterized by a merger of legal and organizational structures. The linear, traditional supply chain model has been transformed.

Real-time information sharing and online interactive capabilities have changed the business environment, as customers and other businesses now have better access to alternative goods and services. In this way, the new distribution channels created offer new ways to optimize value creation processes while making relationships more transparent. The winners in these virtual value networks will be those who have faster access to information and resources, and at the same time are able to generate appropriate competition and supply strategies.

The strategic goal of food security is to provide the population of the country with agricultural products, raw materials and food. The guarantee of food security is the stability of mainly domestic sources of food and raw materials, as well as the availability of the necessary stocks, including reserve funds. Physical and economic affordability is based on achieving a certain balance between food production, sales and consumption. And the volume of food consumption depends on consumer income, price dynamics and the physical availability of food on the market [16].

In an unstable economic environment, managing the competitiveness of agricultural enterprises means not only the process of production of appropriate quality, not only the use of a pricing strategy, but also necessitates the need to take into account changes in market conditions and analyze their impact on agricultural producers, their market potential.

Currently, there is a difficult situation to ensure compliance of agricultural production with a variety of market requirements. When there are many requirements, agricultural producers independently assess the importance of such parameters as quality, price, speed of delivery and marketing flexibility and are forced to look for solutions to meet them. Sometimes there is a situation with requirements, the implementation of which is inefficient for the agricultural enterprise, such as the supply of environmentally friendly products at a low price, the minimum price with an expanded range of products and high speed of delivery. The agrarian enterprise has to solve these issues by forming an effective management system that will ensure compliance of agricultural production with marketing requirements and increase their competitiveness.

Therefore, the choice of competitive strategy is to find an effective way to meet market demands by an agricultural enterprise.

It is not possible to define a general strategy for all enterprises. Every enterprise, even one industry, is unique because it depends on market positions, its potential, development dynamics, behavior of competitors, features of products, the state of the economy, social environment and many other factors.

When choosing a competitive strategy should take into account the factors of its feasibility, namely:

- long-term prospects of the industry;
- opportunities to restore the case, the market and their position in it;
- opportunities for the company to use the financial resources received as a result of the sale in a more promising direction.

It should be noted that the main actions for choosing a strategy will depend on the level of management efficiency in the organization and the organization of the enterprise.

In the economic literature, general strategies means the basic management plan of the enterprise, aimed at establishing its functioning and development in the long run, by implementing product, product, resource and functional strategies necessary to achieve strategic goals.

Consider such a concept as a strategic set of enterprises, which should include actions aimed at the development, integration and use of the main resources of the enterprise - its assets, skills and competencies. Since the competitive strategy of an agricultural enterprise is much broader than the strategy of product quality management, in addition to solving the problem of production of high quality agricultural products, it is necessary to solve a set of economic problems focused on market research.

This leads to the formation of a competitive strategy of the agricultural enterprise on the basis of interrelated components, namely product quality; characteristics of the agricultural enterprise - commodity producer and market characteristics.

Product quality is characterized by such parameters as physical properties, internal features, nutrient content, as well as compliance with sanitary norms and safety rules, cost characteristics (selling price, cost). The quality of products will be influenced by the level of use of production potential, organization of production, level of labor productivity, natural and climatic conditions, etc. Qualitative parameters of products, which are taken into account in the face of competition, are the main criterion for the buyer.

The characteristics of the agricultural producer are indirectly manifested in the quality of products and are determined by the technical level of production (level of equipment, staff qualifications, etc.). The competitiveness of products by its quality characteristics, in turn, increases the competitiveness of the enterprise as a market entity, in the second place - provides higher profitability, promotes market entry, enters more fully the needs of society [18].

The vast majority of scientists identify three main types of short supply chains, which are based on certain forms of communication between the consumer and the manufacturer (Fig. 4).

Face-to-face: The consumer buys the product directly from the manufacturer. Authenticity and trust are established through personal interaction. Some researchers attribute this type of chain to selling products over the Internet, although it is quite difficult to determine to what extent online trading can reproduce the

buying experience directly from the person who produced the product. Examples of sales under the scheme "face to face" are sales directly on farms, owners of subsidiary farms, through farm shops, in farmers' markets, sales on the roads.

Spatial proximity: products are sold in the same region where they are produced, and consumers receive information about the "local" nature of the product at the point of sale. This category coincides with the "face to face" category and includes the same retail space as above. In addition, this category may include specialists in retail trade (bakeries, butchers, grocers) who sell

"local" products, as well as the tourism and hotel industry that sell local products (restaurants, pubs, hotels, etc.).

This category may also include the provision of food in the public sector, such as hospitals, schools, universities, homeless shelters, prisons, etc., that sell or purchase local food. This type may also include the distribution of local foods in supermarkets, a trend that is certainly growing in the UK and France, although there is currently uncertainty about the possibility of such practices in Ukraine.

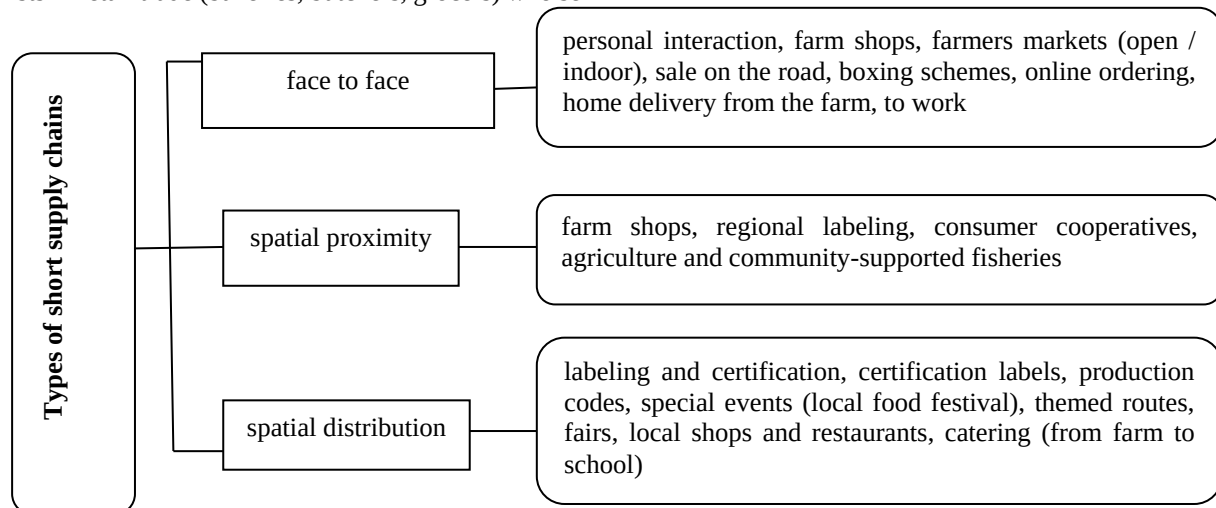


Fig. 4. Types of short supply chains

Spatially extended: information about the place and processes of production is communicated to consumers who are outside the region of production and who may not have personal experience of nutrition in this region. All types of retail space are potentially suitable for this type of short supply chain. Product information is provided through packaging and brand promotion, the use of certification and legislation to protect products with a clear geographical origin.

The main examples are PDO (protection of designated origin) or PGI (protected geographical indications) [19]. Thus, the legally implemented system solves the problem of defining "local" products somewhat differently: not in terms of the specific geographical location of the manufacturer, but in terms of compliance of the place of production with the established criteria. That is, the consumer can rely not on whether the product was made within a certain radius of the point of sale (as in the local food system), but on the fact that it was produced in a separate area defined by a unique combination of soil, topography, climate and local skills. knowledge. Thus, products registered under such schemes can be sold not only in the local market - they can be exported.

The European Rural Development Network in its report on short supply chains [20] identified three types of short supply chains based on their individual or collective organization and initiators (producers and consumers): direct sales to individuals, collective direct sales, partnerships between producers and consumers.

Direct sales are the simplest form of short supply chains and involve direct interaction between the farmer and the consumer. They can take place directly

on the farm, or, for example, in farmers' markets. Food can also be delivered home, especially in urban and suburban areas. Online shopping is another form of direct sales. That is, direct sales are identical in content to the sales scheme "face to face".

Manufacturers can also work together to sell their products together to individuals or groups of consumers - collective direct sales. Such sales can be organized on the farm or in local outlets. Local food festivals or fairs are also a good opportunity for groups of farmers to showcase and sell their produce. In most European countries, producer organizations are involved in local government procurement to supply local food to schools and other catering organizations. Short supply chains can also be found in the form of partnerships between producers and consumers, when written agreements are concluded between the partners. Examples of such partnerships in community-supported agriculture are AMAP in France, RECIPROCO in Portugal, GAS in Italy, and SoLaWi in Germany [19].

Another approach is to classify food chains into two broad categories: traditional short supply chains, which are usually farm-based, in rural areas, and are likely to take the form of farm sales through farm shops, roadside markets or sales in producer markets. They are usually used by farming families and often use traditional and artisanal methods;

Non-traditional short supply chains are more complex systems consisting of joint networks of producers, consumers and institutions, but they often seek to support traditional farming methods through new models and social innovations. Forms of sale include: delivery

schemes; farm shops located in urban settlements; collective agricultural systems, usually located either in the city or on the outskirts of the city.

They can be seen as local food chains run and supported primarily by city dwellers. According to a report by the Spanish Farmers' Union EHNE, short supply chains can be classified on the basis of a level of trade-off (low, medium and high) that can be accepted by producers and consumers in nine categories (Table 1) [79].

Short food supply chains, classified on the basis of the level of compromise accepted by producers and consumers.

The main products sold through short supply chains are fresh fruits and vegetables, animal products, fresh and ready-made (mainly meat), and dairy products. Most short supply chains are characterized by a full or partial method of organic production, but they are not always certified.

Some Member States have developed national labeling schemes, such as FARMA in the UK, a nationwide brand of farmer markets.

Table 1

Short food supply chains, classified on the basis of the level of compromise accepted by producers and consumers

Manufacturers				
The level of compromise		Low	Average	High
Consumers	Low	Supermarket organic products	The store buys directly from manufacturers	Sale on farms and in farm shops
	Average	Consumer cooperative		Boxing schemes
	High	Consumer cooperative run by consumers		A consumer cooperative run by consumers and producers

Labels can also be regional or local. In terms of size, short supply chains can be divided into two main groups: on the one hand, there are a large number of small schemes (less than 10 manufacturers and no more than 10 employees / volunteers), including micro-enterprises (one manufacturer sells its own products directly); on the other hand, there are several large systems involving many farmers (over 100), especially in North-Western Europe.

For the producer, the priority areas of activity are to increase the competitiveness of agricultural products, which consists in:

- increasing the efficiency of agricultural enterprises through technological re-equipment;
- improvement of economic and financial conditions of functioning of agricultural enterprises, which provides for simplification of access to financial resources, the system of state support and improvement of taxation;

- bringing standards for agricultural and food products to the world, introduction of international standards, etc. Розвиток різних форм та типів коротких ланцюгів постачання дозволяють вирішити завдання поліпшення харчування на місцевому рівні та отримати додатковий позитивний вплив для формування моделі сталого розвитку сільських територій.

Thus, supply chain management in the enterprise management system becomes a priority, due to the impact on the business structure of the processes of transformation of the business environment.

Among them: changing conditions of competition caused by the globalization of world markets for raw materials, finished products, information; virtualization of the economy caused by the rapid development of IT technologies.

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INNOVATIVE DEVELOPMENT OF AGRICULTURAL ENTERPRISES AS A FACTOR FOR THE DEVELOPMENT OF THE AGRARIAN ECONOMY OF THE UKRAINE

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ІННОВАЦІЙНИЙ РОЗВИТОК СІЛЬСЬКОГОСПОДАРСЬКИХ ПІДПРИЄМСТВ ЯК ФАКТОР РОЗВИТКУ АГРАРНОГО СЕКТОРА ЕКОНОМІКИ УКРАЇНИ

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Abstract

The article considers the issues of innovative development of agricultural enterprises as one of the factors of development of the agricultural sector of the Ukrainian economy. According to the results of the study, it is determined that agricultural enterprises of Ukraine are characterized by low rates of technological development and a high degree of depreciation of fixed assets. The main reasons for the low level of logistics of agricultural enterprises in Ukraine are clarified. The need to attract investment in agricultural enterprises in order to finance innovative developments and improve logistics is proved. The importance of the introduction of new technologies to ensure the further development of the agri-food sector, stimulate the creative process and create conditions for its development is noted. Ways to solve the problems of innovative development of agricultural enterprises of Ukraine are proposed.

Анотація

У статті розглядаються питання інноваційного розвитку сільськогосподарських підприємств як одного із факторів розвитку аграрного сектора економіки України. За результатами дослідження визначено, що сільськогосподарські підприємства України характеризуються низькими темпами технологічного розвитку та високим ступенем зносу основних засобів. З'ясовано основні причини низького рівня матеріально-технічного забезпечення сільськогосподарських підприємств в Україні. Доведено необхідність залучення інвестицій у сільськогосподарські підприємства з метою фінансування інноваційних розробок та поліпшення матеріально-технічного забезпечення. Зазначено важливість впровадження нових технологій для забезпечення подальшого розвитку агропродовольчого сектора, стимулювання творчого процесу і створення умов для його розвитку. Запропоновано шляхи вирішення проблем інноваційного розвитку сільськогосподарських підприємств України.

Keywords: innovative development, agricultural enterprises, agricultural sector, technical support, investments, economy.

Ключові слова: інноваційний розвиток, сільськогосподарські підприємства, аграрний сектор, технічне забезпечення, інвестиції, економіка.

Постановка проблеми. В сучасних умовах глобалізації економіки інноваційний розвиток стає визначальним чинником досягнення економічного лідерства та важливим інструментом конкурентної боротьби в підвищенні економічної ефективності господарювання. Тому на етапі інтеграції сільського господарства України у світове співтовариство його актуальність набуває дедалі більшого значення. Це зумовило тим, що інновації є матеріальною основою підвищення ефективності виробництва, якості та конкурентоспроможності продукції, зниження витрат і виступають найважливішою умовою економічного зростання на якісно новій основі.

Тільки завдяки науково обґрунтованій політиці можливе здійснення реконструкції аграрних підприємств через застосування новітніх досягнень сільськогосподарської науки у аграрне виробництво.

Аналіз останніх досліджень і публікацій. Проблематиці інноваційного розвитку сільськогосподарських підприємств присвячено численні публікації, зокрема таких науковців, як: В.Я. Амбросов, Н.В. Германюк [1], Т.В. Колесник [5], А.Г. Мазур, С.В. Мочерний, О.Г. Підвальна, О.Л. Польова [5], Н.Л. Правдюк [10], В.Л. Тодосійчук [12] та ін.

Проте, незважаючи на значну кількість публікацій та їхнє наукове і практичне значення, окремі питання стосовно проблем та перспектив інноваційного розвитку сільськогосподарських підприємств України потребують подальшого дослідження, зокрема, доцільно визначити особливості технічного забезпечення сільськогосподарського виробництва та інвестування інновацій в сільськогосподарських підприємствах України.

Формулювання цілей статті. Метою даного дослідження є аналіз стану інноваційного розвитку сільськогосподарських підприємств та обґрунтування ролі інноваційного розвитку сільськогосподарських підприємств як фактору розвитку аграрного сектора економіки України.

Виклад основного матеріалу дослідження. Сучасний етап розвитку економіки вимагає від підприємств постійного підвищення ефективності діяльності та конкурентоспроможності продукції на основі впровадження досягнень науково-технічного прогресу, провідних систем управління, використання інноваційних методів виробництва.

Інноваційний розвиток будь-якого підприємства є невід'ємною умовою його успішного функціонування на внутрішньому і зовнішньому ринках. Це питання особливо набуває актуальності

для сільськогосподарських підприємств, тому що їхня діяльність досить сильно залежить від змін, що відбуваються у світі технологій, безпосередній вплив яких відображається як на якості виробленої ними продукції, так і на доходах підприємства у цілому.

Специфіка агроінновацій полягає у використанні в інноваційному процесі (як і в сільськогосподарському виробництві) природних факторів і компонентів (тварин, рослин), які при цьому виступають і безпосередніми об'єктами агроінноваційної діяльності. Крім того, особливістю аграрних новацій є те, що їх впровадження в агросфері не виступає абсолютною гарантією підвищення конкурентоспроможності виробленої продукції та зростання її частки на ринку. У періоди перевищення пропозиції продукції над попитом на неї інновації допомагають, зокрема, знизити ціни, поліпшити якість і тим самим сприяють зростанню конкурентоспроможності галузі, а в неврожайні роки важливістю інновацій зумовлюється, насамперед, необхідністю поліпшити екологічну складову сільськогосподарської діяльності та підвищити аграрний ресурсний потенціал [13, с. 27].

Аграрний сектор України єдиний у вітчизняному господарському комплексі, який має високі фінансові результати. Рентабельність виробництва продукції сільського господарства значно вище середніх показників по економіці країни [6, с. 6].

Слід зазначити, що в більшості інноваційно-активних підприємств аграрного сектора економіки загальна результативність реалізації моделі інноваційного розвитку формується за рахунок показників економічної ефективності та прибутковості (табл. 1). Такі пріоритети в політиці окремих суб'єктів господарювання не відповідають цілям побудови гуманізованого суспільства і потребують впливу державних регуляторних механізмів щодо зміни парадигми мислення і стимулювання їх до соціально-орієнтованої діяльності [11, с. 112].

Протягом 2014–2019 рр. розмір чистого прибутку сільськогосподарських підприємств досягнув найбільшого значення у 2015 р. (101912,2 млн. грн.). У 2019 р. даний показник збільшився на 34,8% (в порівнянні з 2018 р.), і на 321% (в порівнянні з 2014 р.). Відповідно, найбільшого значення рівень рентабельності діяльності сільськогосподарських підприємств досягнув у 2015 р. (30,4%), а у 2018 р. даний показник дорівнював 16,1%. При цьому, у 2019 р. галузь одержала рекордний врожай зернових і зернобобових культур – 75,14 млн. т (у 2018 р. – 70,06 млн. т).

Таблиця 1

Основні показники діяльності сільськогосподарських підприємств України, 2014-2019 рр.

Показники	2014	2015	2016	2017	2018	2019	Відхилення 2019/2014 +/-
Чистий прибуток (збиток), млн. грн.	21413,4	101912,2	89816,3	68276,8	66878,1	90167,0	68753,6
Підприємства, які одержали чистий прибуток у відсотках до загальної кількості	84,7	88,9	88,4	86,7	86,7	83,4	-1,3
Фінансовий результат, млн. грн.	51668,0	127525,5	102496,1	88676,3	93135,1	114666,4	62998,4
Підприємства, які одержали чистий збиток у відсотках до загальної кількості	15,3	11,1	11,6	13,3	13,3	16,6	1,3
Фінансовий результат, млн. грн.	30254,6	25613,3	12679,8	20399,5	26257,0	24499,4	-5755,2
Рівень рентабельності всієї діяльності, %	9,3	30,4	25,6	16,5	13,5	16,1	6,8
Рівень рентабельності операційної діяльності, %	21,4	43,0	33,6	23,2	18,5	19,3	-2,1
Кількість найманих працівників, тис. осіб	528,9	500,9	513,2	489,2	474,6	461,5	-67,4

Джерело: сформовано автором за даними [4]

Отже, сільськогосподарська галузь здатна одержувати суттєві доходи, які можуть бути використані для соціально-економічного розвитку сільських територій. Доходи від господарювання на землі мають стати, передусім, джерелом інвестицій у суспільно важливі інтенсивні процеси сільськогосподарського виробництва.

Коли йдеться про рентабельність підприємства, – це означає, що в ньому не лише відшкодовують витрати, пов'язані з виробництвом та реалізацією продукції, але й отримують певний прибуток. А це сприяє подальшому розвитку як окремого підприємства, так і економіки в цілому та підвищенню благополуччя громадян.

Підвищення активності інноваційної діяльності сільськогосподарських підприємств є однією з головних передумов стабільності та сталого розвитку аграрного сектору економіки, оскільки це дозволяє не лише змінити характер виробничої

діяльності, але і наповнити її новим значенням і практичним змістом [2, с. 20].

Основа інноваційного розвитку закладає наявний інноваційний потенціал, а саме розроблення й упровадження дієвих механізмів ефективного використання матеріально-технічної бази з урахуванням науково-технологічних досягнень, розвитку системи матеріально-технічного забезпечення сільського господарства, технологічного оновлення виробництва, що стає одним із важливих напрямів підвищення ефективності національної економіки України в цілому та сільськогосподарських підприємств, зокрема.

Протягом останніх років стан технічного оснащення у сільському господарстві України дещо погіршився (табл. 2). Зменшення кількісного складу техніки в сільськогосподарських підприємствах призвело до зниження рівня їх матеріально-технічного забезпечення.

Таблиця 2

Технічне забезпечення сільськогосподарського виробництва в Україні, 2014-2019 рр.

Показники	2014	2015	2016	2017	2018	2019	Відхилення 2019/2014 +/-
Трактори, тис. шт.	130,8	127,9	132,7	129,3	128,7	130,5	-0,3
Зернозбиральні комбайни, тис. шт.	27,2	26,7	27,4	26,8	26,3	26,5	-0,7
Кукурудозбиральні комбайни, тис. шт.	1,8	1,6	1,5	1,5	1,5	1,5	-0,3
Картоплезбиральні комбайни, тис. шт.	1,3	1,2	1,2	1,1	0,9	1,0	-0,3
Бурякозбиральні машини, тис. шт.	2,7	2,4	2,3	2,0	1,6	1,6	-1,1
Льонозбиральні комбайни, тис. шт.	0,2	0,2	0,2	0,1	0,1	0,1	-0,1
Установки та агрегати для доїння корів, тис. шт.	10,5	10,2	10,3	9,5	10,1	10,1	-0,4

Джерело: сформовано автором за даними [4]

Вказана обстава негативно впливає на ефективність сільськогосподарського виробництва. Якісно неоднорідний вплив на інтенсифікацію розвитку ринку наукомістких технологій і прогресивної сільськогосподарської техніки спричинив утворення в Україні великих підприємств (агрохолдингів).

Основними машинами сільське господарство забезпечено лише на 40-50%. Майже 85% технічних засобів, що залишилися у сільськогосподарських підприємствах, відпрацювали по одному і більше нормативних строків, що призводить до грубих порушень технологічних регламентів виробництва.

щування сільськогосподарських культур. Як правило, цю техніку намагаються відремонтувати та використовувати надалі.

Вітчизняні підприємства в умовах спаду виробництва в період економічних реформ зіткнулися з серйозною проблемою у сфері інноваційного розвитку. Основні складнощі були викликані відмовою фінансування НДДКР з боку держави, що призвело до тимчасового заморожування цього виду діяльності організації [8, с. 31].

Світовий досвід показує, що ті країни, які досягли значних успіхів у аграрному секторі мають потужні галузі сільськогосподарського машинобудування і високотехнологічні системи інженерно-технічного обслуговування. Це аксіома нормального функціонування будь-якого суспільства, що має відповідні для сільського господарства природно-кліматичні умови. В умовах ринкової економіки, як свідчить досвід розвинутих західних країн, розвиток та ефективність агропромислового виробництва також значною мірою залежать від державного регулювання і підтримки.

Основними причинами низького рівня матеріально-технічного забезпечення сільськогосподарських підприємств в Україні є:

- недостатність власних джерел для фінансування техніко-технічного переоснащення;
- зростання цін на нову сільськогосподарську техніку;
- зниження обсягів державної підтримки оновлення машино-тракторного парку за рахунок програми фінансового лізингу;
- нерозвиненість вітчизняного сільськогосподарського машинобудування, продукція якого не відповідає сучасним вимогам аграрного виробництва [3, с. 7].

Від стійкого функціонування аграрного сектора в значній мірі залежить рівень життя населення, але такий капіталомісткий сектор, яким є агропромисловий комплекс не може функціонувати без високих темпів і значних масштабів накопичення капіталу. У зв'язку з цим інвестиційна проблема стає ключовою для аграрної економіки не

тільки на найближчі роки, а й на перспективу. Різке скорочення державного фінансування, відсутність ефективної та обґрунтованої кредитної системи в сільському господарстві, жорстка податкова політика, збільшення імпорту сільськогосподарської продукції сприяли тому, що вітчизняні сільськогосподарські товаровиробники позбулися всіх джерел утворення та накопичення капіталу, що, в свою чергу, негативно відбилося на функціонуванні галузей, технологічно пов'язаних із сільським господарством.

Сільськогосподарським підприємствам досить складно здійснювати впровадження новітніх технологій та сучасного технічного оснащення. Це вимагає великих фінансових затрат та спеціальних знань, які не завжди під силу будь-якому підприємству аграрної сфери. До таких заходів удаються переважно великі підприємства, які мають певні фінансові ресурси або можливості для їх залучення.

Одним із джерел додаткових коштів є інвестиційні ресурси. Тому, слід здійснювати постійний пошук потенційних інвесторів та розробляти інвестиційні проекти з метою фінансування впровадження у свою діяльність сучасних інноваційних розробок (табл. 3).

Пожвавлення інвестиційної активності є неодмінною умовою виходу підприємств АПК на стійку траєкторію економічного зростання. Світовий досвід, а також українська дійсність свідчать, що без активізації ролі держави, органів місцевого самоврядування в інвестиційному процесі відновлення і зростання економічного потенціалу України та її регіонів неможливі.

Протягом 2014-2019 рр. спостерігається тенденція зменшення прямих інвестицій у сільське, лісове та рибне господарство. Дана тенденція є характерною майже для усіх видів діяльності.

Частка прямих інвестицій у сільське господарство у 2019 р. становила всього лише 1% із загального обсягу прямих інвестицій в економіку України.

Таблиця 3

Обсяг прямих інвестицій (акціонерного капіталу) в економіку України за видами економічної діяльності, 2014-2019 рр.

Вид економічної діяльності	2014	2015	2016	2017	2018	2019	Відхилення 2019/2014 %
Сільське, лісове та рибне господарство, млн. дол. США	776,9	617,0	502,2	586,2	578,6	451,9	58,2
Промисловість, млн. дол. США	17681,4	12419,4	9893,6	9667,6	10543,7	10823,4	61,2
Будівництво, млн. дол. США	1580,0	1301,9	1104,1	1043,3	919,5	983,5	62,2
Оптова та роздрібна торгівля, млн. дол. США	6807,8	6037,6	5247,4	5106,5	4957,8	5480,2	80,5
Транспорт, складське господарство, поштова та кур'єрська діяльність, млн. дол. США	1535,3	1355,5	1088,0	1086,0	985,3	1043,0	67,9
Тимчасове розміщення й організація харчування, млн. дол. США	446,5	382,3	332,6	330,0	343,3	355,5	79,6
Інші види економічної діяльності, млн. дол. США	24876,1	18611,7	13954,6	13410,7	13278,2	13767,6	55,3
Усього	53704,0	40725,4	32122,5	31230,3	331606,4	32905,1	61,3

Джерело: сформовано автором за даними [4]

Аналіз рівня припливу інвестиційних ресурсів в сільськогосподарське виробництво показує, що він продовжує залишатися низьким. Це пов'язано з тим, що сільське господарство – це галузь економіки, підвладна більшій кількості ризиків, ніж промисловість або сфера послуг, що певною мірою позначається на рівні інвестиційної привабливості.

Особливе значення сільського господарства для стимулювання інвестиційної діяльності зумовлено, по-перше, низькою капіталоємністю і найменшими термінами окупності капітальних вкладень; по-друге, для продукції цієї галузі характерний масовий і стійкий попит на внутрішньому

ринку. Крім того, сільське господарство має сильні міжгалузеві зв'язки, внаслідок чого інвестиції в його розвиток створюють найбільший кумулятивний ефект, стимулюючи попит на продукцію суміжних галузей і формуючи в них власний інвестиційний потенціал.

Велике значення для підвищення привабливості інвестицій в українській економіці відіграє зміцнення української банківської системи, тобто створення ефективних джерел акумулювання заощаджень і перетворення їх в інвестиції.



Рис. 1. Структура прямих інвестицій (акціонерного капіталу) в економіку України за видами економічної діяльності, 2019 р., %

Джерело: сформовано автором за даними [4]

Активізація інвестиційної діяльності є не тільки основною умовою виведення сільського господарства з глибокої кризи, але й стає найважливішим визначальним фактором подальшого його розвитку. Інвестицій сьогодні гостро потребують практично всі сфери і галузі АПК, чи то сільське господарство, переробна промисловість, фондовиробничі галузі або житлова сфера села. Тому створення передумов для масового припливу інвестицій в аграрний сектор має стати найважливішим елементом стратегії державної аграрної політики на сучасному етапі. Наболілою точкою народного господарства країни і більшості регіонів залишається продовольча проблема. На ринку вітчизняних продуктів харчування як і раніше зберігається значна напруженість [7].

Проведені дослідження показують, що інвестиційні відносини у сфері сільського господарства

не повною мірою відповідають вимогам ринкової економіки: недостатньо відпрацьований механізм інвестування; відсутня державна підтримка сільського господарства, забезпечує ефективне функціонування аграрного виробництва: збиткова діяльність сільськогосподарських підприємств не дозволяє забезпечувати повернення отриманих інвестицій.

Очевидно, що роль держави полягає не тільки у фінансуванні фундаментальних науково-дослідних розробок в аграрній сфері, хоча і це, безперечно, дуже важливо. Необхідно також на вищому рівні керівництва країною усвідомити критично високі значення впровадження нових технологій для забезпечення подальшого розвитку агропродовольчого сектора, стимулювання творчого процесу і створення умов для його розвитку, компетентного

вибору інноваційних пріоритетів у галузі та неупередженого відбору відповідних кожному з них проєктів, а також розробки механізмів непрямої підтримки модернізації аграрного сектора, насамперед, для здійснення впливу на процес формування ринку агроновацій, оскільки рішення про їх впровадження приймає безпосередньо сільськогосподарський виробник.

Отже, інвестиційний клімат в Україні, на даний момент, не є сприятливим для інвесторів, адже існує низка невирішених проблем, які перешкоджають залученню коштів. Однією із найвагоміших причин погіршення інвестиційного клімату є нестабільна ситуація на Сході країни.

Сучасний стан вітчизняних сільськогосподарських підприємств характеризується високою варіативністю значення показників ефективності виробництва за роками, переважанням застарілих технологій і, як наслідок, – низькою фінансовою стабільністю.

Вітчизняний аграрний сектор має значний земельний та трудовий потенціал, але його ефективна реалізація потребує зміцнення матеріально-технічної бази, заміни діючих ресурсо- та трудомістких технологій на матеріало-, енерго- та трудозберігаючі. Лише технологічна модернізація зможе забезпечити формування ефективного, наукоємного сільського господарства, здатного задовольнити потреби внутрішнього ринку та вивести країну на провідні позиції на зовнішніх аграрних ринках. Вирішальною умовою модернізації є активізація інноваційної діяльності виробників.

Однак наразі Україна знаходиться в умовах наздоганяючої модернізації та обмежених інвестиційних ресурсів. Така ситуація потребує чіткого визначення перспектив і напрямів інноваційного розвитку аграрного сектору, а отже, інформації, що характеризує рівень розвитку та результати інноваційної діяльності.

Зокрема першочергового вирішення потребують такі проблеми:

- усунення диспаритету цін на промислову та сільськогосподарську продукцію та, як наслідок, підвищення платоспроможного попиту на сільськогосподарську техніку й підвищення купівельної спроможності сільськогосподарських товаровиробників, оскільки серед джерел фінансування капітальних вкладень пріоритетну роль відіграють власні кошти підприємств;

- державна підтримка підприємств аграрної сфери, в першу чергу шляхом фінансування реалізації цільових програм спрямованих на покращення матеріально-технічного забезпечення підприємств аграрної сфери та розвиток АПК в цілому;

- доступне кредитування сільськогосподарських товаровиробників, зокрема часткова компенсація державою відсоткових ставок за кредитами на купівлю техніки для сільськогосподарських товаровиробників;

- покращення інвестиційного клімату, що сприятиме залученню інвестицій у підприємства аграрної сфери;

- сприяння розвитку інноваційної діяльності в аграрному секторі та використання наукових розробок не лише в подальших дослідженнях наукових установ, а й безпосереднє їх освоєння у процесі сільськогосподарського виробництва;

- розвиток лізингу в сільськогосподарській галузі;

- формування стратегії розвитку АПК на перспективу [14].

Висновки. На сьогодні інноваційний розвиток сільськогосподарських підприємств України знаходиться в умовах наздоганяючої модернізації та недостатніх фінансових ресурсів для її здійснення. Дана ситуація потребує чіткого визначення напрямів та перспектив інноваційного розвитку аграрного сектора на основі вітчизняних та світових досягнень науково-технічного прогресу.

Динамічне зростання технологічного розвитку сільського господарства, використання нових, ресурсозберігаючих технологій забезпечить підвищення ефективності діяльності сільськогосподарських підприємств, їх конкурентоспроможність, інноваційно-інвестиційний розвиток у ринкових умовах та соціально-економічний розвиток сільських територій.

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BUSINESS SOCIAL RESPONSIBILITY AS A COMPONENT OF ECONOMIC SECURITY

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СОЦІАЛЬНА ВІДПОВІДАЛЬНІСТЬ БІЗНЕСУ ЯК СКЛАДОВА ЕКОНОМІЧНОЇ БЕЗПЕКИ

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Abstract

The article the basic principles of social responsibility of business are defined. It was determined that the introduction by enterprises of the principles of social responsibility of business increases the competitiveness of enterprises, reduces the risks of entrepreneurial activity, makes it possible to enter foreign markets, and increases the economic and social efficiency of activities.

Анотація

У статті визначено основні принципи соціальної відповідальності бізнесу. Визначено, що впровадження підприємствами принципів соціальної відповідальності підвищує конкурентно-спроможність підприємств, знижує ризики підприємницької діяльності, дає можливість вийти на зовнішні ринки, підвищує економічну та соціальну ефективність діяльності.

Keywords: business, marketing, social responsibility, socio-economic development, social factors, economic security.

Ключові слова: бізнес, маркетинг, соціальна відповідальність, соціально-економічний розвиток, соціальні фактори, економічна безпека.

Постановка проблеми. Основними вимогами, які допоможуть отримати вигідні конкурентні позиції на сучасному ринку є додержання соціально-етичних норм та орієнтація на принципи соціальної відповідальності бізнесу. Сучасні вітчизняні

підприємці у своїй діяльності активно використовують, запозичений у зарубіжних колег досвід ведення справ, заснований на принципах соціальної відповідальності бізнесу. Підґрунтям принципів соціальної відповідальності бізнесу є соціально-

відповідальна діяльність підприємств, що включає також такі напрями як, захист навколишнього середовища, задоволення довгострокових інтересів суспільства, запитів споживачів та таке інше. Сьогодення вимагає врахування екологічних аспектів діяльності й рівня екологічної безпеки продукції, яка реалізується вітчизняними товаровиробниками, що в свою чергу дає можливість отримати певні конкурентні переваги.

Основними напрямками принципів соціальної відповідальності бізнесу є: виробництво необхідної та безпечної для суспільства продукції; постійне відновлення товару відповідно до зростаючих запитів споживачів; відмова від виробництва товарів, що завдають шкоду суспільству чи навколишньому середовищу; використання у виробництві екологічно безпечних ресурсів; впровадження програм соціально відповідальної діяльності підприємства; додержання соціально-етичних норм при прийнятті виробничих рішень.

Тому сучасні віяння в соціально-орієнтованому суспільстві звертають увагу підприємств саме на дотримання соціально-етичних норм, а отже і веденні соціально відповідального бізнесу, як нової філософії бізнесу.

Аналіз останніх досліджень і публікацій. Дослідження з проблем розвитку соціальної відповідальності бізнесу проводили відомі зарубіжні дослідники: Г.Г. Абрамшвілі, Ф. Котлер, В.А. Полторак, Р. Уотермен, К.-Х. Хоппе, Х. Швальбе, Дж. О'Шонессі. В Україні до науковців, які ґрунтовно опікуються проблемами соціальної відповідальності бізнесу, варто віднести: Д.В. Акімова, А. Ф. Павленко, Є.В. Крикавського, С.С. Гаркавенко, С.В. Скибінського. Разом з тим принципи соціальної відповідальності бізнесу, в умовах динамічного розвитку ринку потребує регулярного дослідження та аналізу нових заходів адаптації його у діяльність вітчизняного бізнесу.

Метою статті є дослідити сучасні тенденції формування та розвитку принципів соціальної відповідальності бізнесу та визначити основні шляхи його адаптації до сучасних вітчизняних соціально-економічних умов.

Викладення основного матеріалу дослідження. Процеси глобалізації та інтернаціоналізації світової економіки, вимагають розвитку соціально орієнтованого маркетингу. За своєю суттю маркетинг не є своєю альтруїстичною діяльністю, за винятком неприбуткових організацій. Отримання прибутку є метою діяльності будь-якого підприємства, однак обраний напрям досягнення даної мети не повинен суперечити моральним нормам і довгостроковим інтересам усього суспільства.

Управління маркетингом має вирішальне значення для досягнення цілей будь-якого підприємства. Основний вектор маркетингової діяльності завжди спрямований на створення і збільшення попиту на продукцію. Саме тому управління попитом є важливим напрямком діяльності підприємства [1].

Як свідчать сучасні реалії, підприємництво в Україні ще не досягло такого рівня ведення

соціально-відповідальної діяльності, як розвинені країни, на жаль більшість вітчизняних підприємств обертають лише комерційну вигоду. Що вказує на прагнення вирішувати лише поточні проблеми, не враховуючи стратегічну перспективу. Така стратегія вітчизняних підприємств є наслідком звичок, що сформувались ще за період виживання у скрутні часи. Ще багато складових соціальної відповідальності бізнесу в Україні залишилися ще на рівні минулого століття, а не змінюються у відповідності з розвитком ринкових відносин. У деякій мірі, зроблені та представлені всі етапи реалізації принципів соціальної відповідальності бізнесу, хоча не зовсім сформувалось розуміння необхідності її реалізації при веденні комерційної діяльності.

Перехід до реалізації соціальних програм вимагає фінансових затрат, а отже і їх компенсації, що в свою чергу обмежує максимізацію прибутку в поточному періоді. Також існує проблема, при реалізації соціальної програми, як відсутність необхідного досвіду й залучення висококваліфікованих спеціалістів в даній сфері. Саме через це і не тільки, власники вітчизняного бізнесу, поки що, не до кінця розуміють тісний взаємозв'язок між проведенням соціальних заходів і покращенням фінансових результатів [2].

Підприємства, які першими почали здійснювати імплементацію соціально відповідальної діяльності є новаторами, які формують інноваційну стратегію на основі принципів соціальної відповідальності бізнесу. Впровадження на вітчизняних принципів соціальної відповідальності бізнесу дасть можливість отримати такі переваги: підвищити власні конкурентні позиції; укріпити нематеріальні активи; зміцнити імідж компанії, не лише у споживачів до продукції, але і до підприємства в цілому; залучити інвесторів та інших зацікавлених сторін; стабілізувати обсяги реалізації продукції; одержати позитивну реакцію з боку суспільства; впровадити власну інноваційну стратегію розвитку.

Соціально-відповідальний маркетинг набуває особливого значення в період зростання руху на захист прав споживачів та охорони навколишнього середовища. В Україні соціальна відповідальність бізнесу має різні прояви: залежно від положення підприємства на ринку, рівня конкуренції, характеру взаємин з органами державної та місцевої влади, наявності передвиборчої кампанії та ін. [3]. Отже використовуючи концепцію соціально-відповідального маркетингу основним завданням підприємства визначення потреб та інтересів цільових ринків, а також у їх задоволенні способами, які будуть ефективнішими, ніж у конкурентів, за умови збереження і підвищення добробуту не лише окремих споживачів, а і суспільства в цілому.

Концепція соціально-відповідального маркетингу ґрунтується на чотирьох основних положеннях:

– бажання споживачів не завжди збігаються з їх довгостроковими інтересами чи з інтересами всього суспільства.

– споживачі віддають перевагу тим підприємствам, які проявляють дійсну турботу про споживачів, а також про добробут суспільства;

– підприємства мають визначити для себе правила етичної поведінки з окремими споживачами і суспільством у цілому;

– головне завдання підприємства – пристосуватися до цільових ринків з тим, щоб не тільки викликати задоволення, а й підвищувати індивідуальний та колективний інтереси [4].

В умовах кризових явищ, що спостерігаються в економіці України важливою умовою забезпечення сталого розвитку підприємства є забезпечення безпеки фінансово-економічної діяльності через формування ефективної системи управління для швидкого реагування на виклики зовнішнього середовища [5]. Концепція соціальної відповідальності бізнесу базується на принципах традиційного маркетингу, але з урахуванням загальнолюдських суспільних інтересів. Появі концепції соціальної відповідальності бізнесу сприяли підвищені вимоги до впливу бізнесу на екологію, середовище

існування людини, обмеженість природних ресурсів і проблеми розвитку соціальної сфери.

Впровадження принципів соціальної відповідальності бізнесу на вітчизняних підприємствах сприяє формуванню в Україні сучасних економічних відносин, які базуються на центральних ідеях маркетингу, а саме: повага до різноманітних смаків і вподобань людей, індивідуальна свобода, пріоритети споживача тощо [6].

У центрі уваги принципів соціальної відповідальності бізнесу – повага до людини, середовища її перебування й можливостей майбутніх поколінь. Тобто, якщо брати зі сторони ідеалізму, то саме так це поняття несе за собою зміст [7].

Соціальна відповідальність бізнесу є основним джерелом, яке забезпечує суспільний характер ведення підприємницької діяльності. Цей механізм керується через маркетингову орієнтацію на досягнення максимальної соціальної етики в комерційній діяльності. А коренем цього всього є інтереси та потреби громадян чи суспільства в цілому (рис. 1).

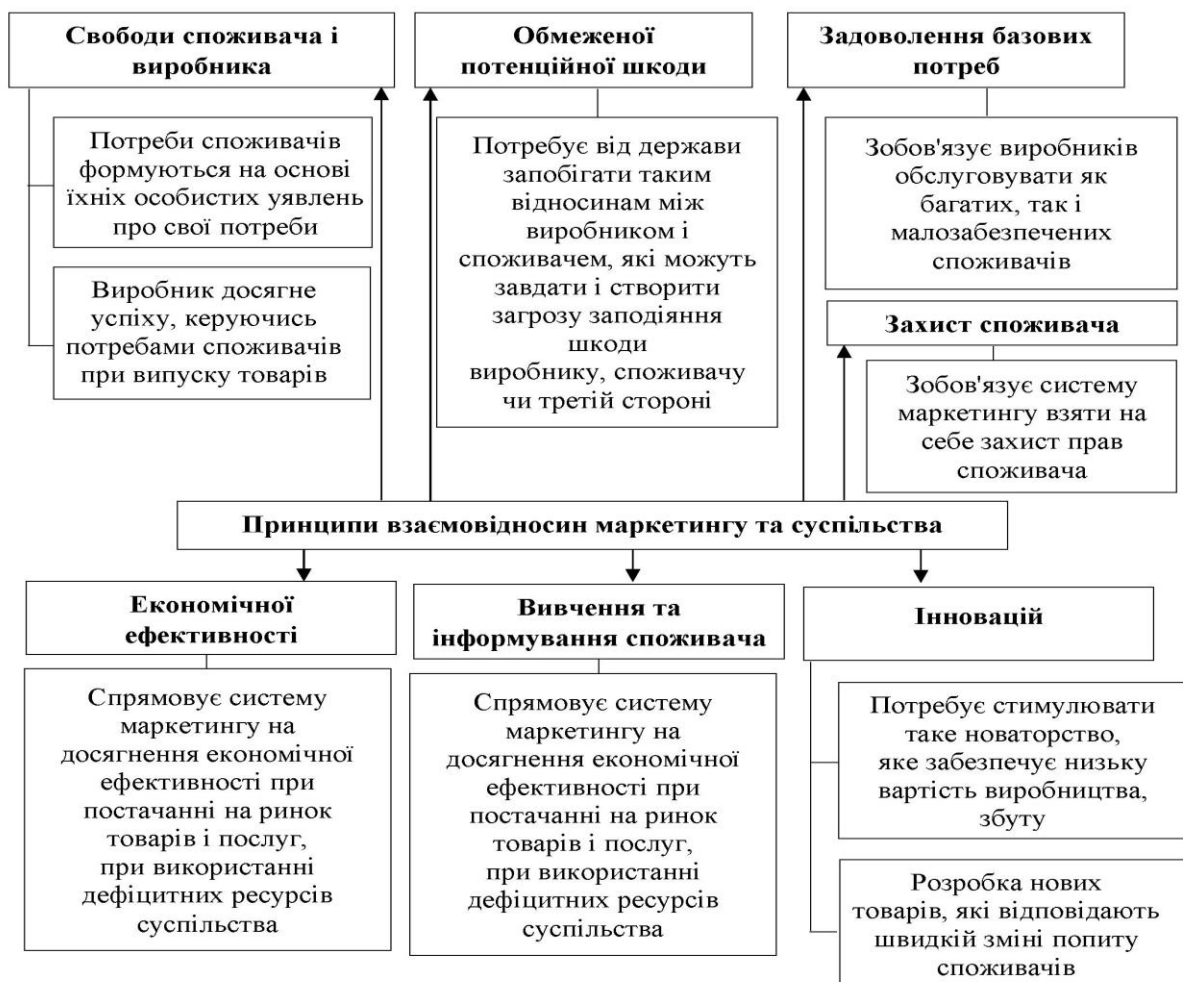


Рис 1. Основні принципи взаємовідносин маркетингу та суспільства для побудови соціальної відповідальності бізнесу

Застосування принципів соціальної відповідальності бізнесу поставило перед спеціалістами одну з основних задач розроблення та впровадження в практику етики та основних норм соціальної відповідальності бізнесу.

Підприємці, які турбуються про свою репутацію, стають дуже обачними і вимогливими у цих питаннях. Підприємці, які порушують правила та не дотримуються встановлених в суспільстві соціально-етичних норм ризикують не лише репутацією, але

втратаю ринку, потенційних споживачів і часто вимушені платити штрафи. Розроблення та впровадження Кодексу етичної поведінки, в якому відображені основні вимоги соціальної відповідальності бізнесу, триває.

Вагомою проблемою сучасного бізнесу є низький рівень прозорості, відповідальності та довіри у взаєминах виробника та споживача. Саме тому, під час ведення своєї діяльності, підприємствам варто

більше звертати увагу на принципи соціальної відповідальності бізнесу. Така політика є вигідною не лише для споживача, адже соціально-відповідальна діяльність піднімає довіру у споживача до організації, а отже формує позитивний імідж, що впливає на досягнення конкурентних позицій і зайняття лідируючих позицій на ринку (рис. 2).



Рис 2. Напрями забезпечення розвитку соціальної відповідальності бізнесу

Суть соціальної відповідальності бізнесу в тому, що працівники маркетингу повинні брати на себе відповідальність за наслідки своєї діяльності та спрямувати всі зусилля, щоб прийняті ними рішення, їхні рекомендації та вчинки були спрямовані на визначення та задоволення потреб всіх основних елементів суспільства: споживачів, організацій (підприємств) і суспільства в цілому [8].

Етичні проблеми у маркетинговій діяльності підприємства виникають унаслідок через неспроможність поєднати очікування і реальною спроможністю їх реалізовувати. Підприємства користуючись інструментами стимулювання збуту, дуже часто порушують очікування споживачів, чим завдають шкоди в першу чергу своєму іміджу. Тому

для уникнення таких ситуацій необхідно дотримуватись принципів соціальної відповідальності бізнесу, які забезпечують довготривалі відносини між споживачами та товаровиробниками.

Розглядаючи соціально-відповідальний маркетинг як такий, що включає соціальна відповідальність бізнесу, можна стверджувати, що для здійснення соціально-відповідального маркетингу актуальним є дотримання вимог, визначених у [9]:

1. Основна мета підприємства повинна полягати у задоволенні розумних, здорових потреб споживачів відповідно до гуманних інтересів суспільства.
2. Підприємство має бути постійно зайняте пошуком можливостей створення нових товарів, які

найбільш повно задовольнятимуть потреби покупців. Воно має бути готовим до систематичного внесення удосконалень у виробництві товарів відповідно до інтересів покупців.

3. Підприємство повинне відмовлятися від виробництва і продажу товарів, що суперечать інтересам споживачів, і, особливо, якщо вони можуть заподіяти шкоду споживачеві та суспільству взагалі.

4. Споживачі, спираючись на власні дії і громадську думку, повинні підтримувати тільки ті підприємства, які підкреслено виявляють турботу про задоволення нормальних здорових потреб носіїв платоспроможного попиту.

5. Споживачі, піклуючись про збереження і підвищення якості життя, не купуватимуть товари підприємств, що використовують екологічно «нечисті» технології навіть для виробництва потрібного людям товару.

6. Підприємство повинно створювати і впроваджувати в практику такі програми соціально-економічного розвитку, які не лише задовольняють інтереси самого підприємства і його трудового колективу, але є корисними для соціального розвитку регіону, у якому це підприємство функціонує.

Представлена точка зору орієнтована не лише на визначення вимог до підприємств щодо спрямування маркетингу на вирішення соціальних проблем суспільства, вона прогнозує поведінку споживачів як реакцію на пропозицію ринку продукції, випущеної підприємствами, що є носіями корпоративної соціальної відповідальності. Проте така поведінка споживачів характерна для зрілих ринків при достатньо високому рівні купівельної спроможності населення, коли основними конкурентними перевагами споживачі вважають не цінову політику, а характеристики товарів і ринкову поведінку підприємств виробників [10].

Отже, перехід підприємств до соціальної відповідальності бізнесу вимагає комплексних заходів, що охоплюють усі ключові складники комплексу маркетингу. Для забезпечення сприятливого розвитку соціальної відповідальності бізнесу в Україні необхідно: ширше пропагувати успішний досвід організації бізнесу на засадах принципів соціальної відповідальності бізнесу; вивчати вплив переваг застосування сучасної маркетингової концепції на конкурентоспроможність і розвиток підприємств; досліджувати потреби споживачів, а також соціальні та екологічні наслідки виробництва та споживання товарів, які підприємство виготовляє [11].

Для підприємств, що сповідують концепцію соціального маркетингу, – це створення позитивного іміджу, поліпшення якості управління бізнесом (підвищення продуктивності праці персоналу, скорочення операційних витрат, збільшення продажів і зростання лояльності клієнтів), підвищення інвестиційної привабливості і, як результат, зміцнення конкурентоспроможності на національному та міжнародному ринках, а для суспільства – ефективний інструмент вирішення соціальних проблем [12].

Для забезпечення розвитку соціальної відповідальності бізнесу та впровадження його основних ідей в діяльність товаровиробників доцільно не лише пропагувати успішний досвід організації бізнесу на основі концепції соціального маркетингу у засобах масової інформації, а й формувати інформаційний банк даних щодо соціальних проектів, та впроваджувати норми соціальної відповідальності бізнесу для підприємств різних за розміром, видів діяльності та форм власності.

Висновки. Соціальна відповідальність бізнесу в першу чергу являє собою сучасну філософію ведення маркетингової діяльності підприємства та один із засобів впровадження інноваційно орієнтованої стратегії розвитку підприємства. Порухення принципів соціальної відповідальності бізнесу звуужує можливості одержання успіху компанії, через ватру довіри серед споживачів та зацікавлених сторін організації. Основним принципом соціальної відповідальності бізнесу це баланс інтересів бізнесу і суспільства, тому впровадження цієї концепції повинно відбуватися системно і на різних організаційних рівнях. Більшість вітчизняних товаровиробників знаходяться на шляху до переходу та реалізації соціального маркетингу. Однак за сучасних економічних та соціальних умов розвитку суспільства саме принципи соціальної відповідальності бізнесу виступає тим необхідним підходом, що допоможе вчасно реагувати та пристосовуватись до соціальних змін і соціальних процесів у демократичному суспільстві. Разом з тим спостерігається подальший розвиток світової торгівлі, тому поряд з досягненням конкурентних позицій, підприємства повинні отримати прихильність споживачів не лише екологічно чистою продукцією, а й дотриманням загальної соціально-відповідальної поведінки. Тому виникає необхідність застосування концепції, яка б враховувала ці особливості, зокрема, принципи соціальної відповідальності бізнесу. Впровадження підприємствами та організаціями принципів соціальної відповідальності бізнесу підвищує конкурентоспроможність підприємств, знижує ризики підприємницької діяльності, дає можливість вийти на зовнішні ринки, підвищує економічну та соціальну ефективність його діяльності. Основною метою соціальної відповідальності бізнесу є поліпшення якості життя суспільства, а не лише забезпечення інтересів бізнесу. Таким чином, сучасний соціальна відповідальність бізнесу може створити і поліпшити якість ведення підприємницької діяльності з урахуванням інтересів не лише бізнесу, але і суспільства в цілому.

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DIFFERENTIATION OF INCOME OF THE POPULATION ON THE EXAMPLE OF SMALL BUSINESSES, FORMED AS A RESULT OF THE PANDEMIC

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ДИФФЕРЕНЦИАЦИЯ ДОХОДОВ НАСЕЛЕНИЯ НА ПРИМЕРЕ МАЛОГО БИЗНЕСА, СЛОЖИВШАЯСЯ В РЕЗУЛЬТАТЕ ПАНДЕМИИ

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Abstract

Restrictive measures during the coronavirus pandemic significantly affected the level of small businesses. A very important role for anti-crisis measures is played by maintaining employment and supporting entrepreneurship. Whatever the entrepreneur is doing at this time, now he does not have enough labor markets and sales. The population has financial difficulties and purchasing power has reached a critical level. Medical institutions that provide laboratory diagnostics and emergency care to the population may remain at some level. At the moment, there are a lot of private cosmetology and dental clinics that were closed during the pandemic. This caused a decrease in the performance of doctors who provided these services. It should also be noted that the patients who were provided with services were in a desperate situation, because their treatment was suspended for a long time.

Аннотация

Ограничительные меры на время коронавирусной пандемии существенно повлияли на уровень малого бизнеса. Очень важную роль для антикризисных мероприятий играет сохранение занятости населения и поддержка предпринимательства. Чем бы не занимался предприниматель в данное время, сейчас у него в должной мере нет рынков труда и сбыта. У населения финансовые сложности и покупательская способность достигла уровня критической отметки. Могут удержаться на каком-то уровне медицинские учреждения, которые оказывают лабораторную диагностику, неотложную помощь населению. На данный момент очень много частных косметологических и стоматологических клиник, которые во время пандемии оказались закрыты. Это спровоцировало снижение работоспособности врачей, которые оказывали данные услуги. Необходимо также отметить тот факт, что пациенты, которым оказывались услуги, оказались в безвыходном положении, ведь их лечение было приостановлено на длительный срок.

Keywords: income of the population, small business, problem solving.

Ключевые слова: доходы населения, малый бизнес, решение проблемы.

Малый бизнес подходит к критической точке и людям необходимо начинать своё дело с самого начала. А это опять большие кредиты, расходы. Как государство может поддержать в таком случае? Существуют государственные программы по поддержке малых организационных форм хозяйствования. К ним относятся: субсидирование, освобождение от отчетности, образовательные программы, информационная поддержка, привилегии в использовании госимущества. Получается, достаточно снизить налоги и оказать некоторую материальную поддержку. Пусть это не реанимирует малый бизнес, но хотя бы его спасёт. Да и то выживут далеко не все. Те предприятия, которые получили возможность работать во время пандемии, вынуждены были распустить часть сотрудников по домам с сохранением заработной платы. За счёт этого производительность упала, сократились рынки сбыта продукции. Выживут только те компании, которые могут рассчитывать на расширенные меры поддержки, включённые в список системообразующих предприятий российской экономики. К чему же готовиться предпринимателям? В экономике, на данный момент, отчетливо виден кризис и в ближайшее время он не закончится, а помощь государства не сможет решить все проблемы малого бизнеса, если предприниматели не будут заинтересованы в том, чтобы искать самые оптимальные методы выходы из кризиса.

Цель исследования: Найти пути решения проблемы для помощи малому бизнесу в условиях пандемии.

Материалы и методы: Был проведен опрос среди 15 предпринимателей и 20 работников меди-

цинских структур, которые во время коронавирусной пандемии оказались безработными. Для достоверной оценки данных было проведено анкетирование и подведение итогов.

Анкета предпринимателя:

1. Поменяли ли вы сферу своей деятельности?
2. Был ли изменен профиль ваших услуг?
3. Ваша работа была приостановлена полностью?
4. Беспокоит ли вас неопределенность будущего?
5. Нуждаетесь ли вы в финансовой подушке безопасности?
6. Можете ли вы оказывать онлайн -услуги или консультации?
7. Готовы ли вы к рискам?
8. Сможете ли вы адаптироваться к обстоятельствам?

Анкета наемного работника:

1. Потеряли ли вы свою занятость во время пандемии полностью?
2. Ваша занятость была приостановлена частично?
3. Пришлось ли вам сменить сферу деятельности?
4. Беспокоит ли вас неопределенность будущего?
5. Нуждаетесь ли вы в финансовой подушке безопасности?
6. Можете ли вы оказывать онлайн -услуги или консультации?
7. Готовы ли вы к рискам?
8. Сможете ли вы адаптироваться к обстоятельствам?

Результаты анкетирования:

Таблица №1

Анкета предпринимателя (опрос среди 15 человек)

	Да	Нет
1. Потеряли ли вы свою занятость во время пандемии полностью?	6	9
2. Ваша занятость была приостановлена частично?	10	5
3. Пришлось ли вам сменить сферу деятельности?	11	4
4. Беспокоит ли вас неопределенность будущего?	14	1
5. Нуждаетесь ли вы в финансовой подушке безопасности?	15	0
6. Можете ли вы оказывать онлайн -услуги или консультации?	7	6
7. Готовы ли вы к рискам?	5	10
8. Сможете ли вы адаптироваться к обстоятельствам?	12	3

Большинство предпринимателей (9) не собираются завершать свою деятельность в связи с ограничениями. Профиль услуг в некоторой степени был изменен. Также большинство предпринимателей указали что их беспокоит неопределенность будущего. (14). Для того, чтобы в будущем подобные

кризисные обстоятельства проходили максимально безболезненно всем необходима финансовая подушка безопасности.

Результаты анкетирования:

Таблица №2

Анкета наемного работника (опрос среди 20 человек)

	Да	Нет
1. Поменяли ли вы сферу своей деятельности?	14	6
2. Был ли изменен профиль ваших услуг?	15	5
3. Ваша работа была приостановлена полностью?	16	4
4. Беспокоит ли вас неопределенность будущего?	18	2
5. Нуждаетесь ли вы в финансовой подушке безопасности?	19	1
6. Можете ли вы оказывать онлайн - услуги или консультации?	16	4
7. Готовы ли вы к рискам?	8	12
8. Сможете ли вы адаптироваться к обстоятельствам?	9	11

Согласно полученным результатам анкетирования предпринимателям и наемным работникам необходима помощь и поддержка.

Что же делать сейчас тем, кто еще не закрылся и надеется наверстать упущенное после снятия ограничений?

Можно принять во внимание следующее:

- Постоянные клиенты очень важны, поэтому при возобновлении работы их можно как-то об этом оповестить.
- Пересмотреть бизнес-процессы в сторону максимального роста производительности.
- В новой реальности нужны будут новые подходы, и думать о них нужно уже сейчас.
- Смотреть в сторону инвестиций.

Говоря проще, нужно как минимум понимать свое фактическое положение и попытаться составить финансовый план хотя бы на ближайшее будущее. Рынок и потребители после пандемии будут уже не теми, что раньше – и это нужно обязательно учитывать. Кроме того, строить финансовую модель лучше в разных сценариях – если спрос восстановится быстро или если спад окажется долгим.

Закключение:

Кризисные ситуации - лучшее время для объединения усилий и взаимной поддержки поэтому важно: соблюдать спокойствие, искать другие каналы сбыта, свести к минимуму затраты, использовать время на реализацию идей, которые всегда откладывались на потом, оставаться всегда на связи со своими клиентами и общаться с ними.

Обратите внимание на постоянные затраты. Попробуйте для себя удаленную работу, а заодно сократите постоянные расходы. Прежде чем совершать крупные покупки, думайте, необходимы ли они сейчас вашей компании. Время кризиса делает нас более гибкими людьми и адаптироваться к ситуации, получайте новый опыт, ведь так будет не всегда. Ведь в будущем эти перемены только усилят бизнес.

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THE IMPACT OF COVID-19 ON THE DEMOGRAPHIC SITUATION OF DIABETIC PATIENTS (BASED ON THE MATERIALS OF RSO-ALANIA)

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ВЛИЯНИЕ COVID-19 НА ДЕМОГРАФИЧЕСКОЕ ПОЛОЖЕНИЕ БОЛЬНЫХ САХАРНЫМ ДИАБЕТОМ (ПО МАТЕРИАЛАМ РСО-АЛАНИЯ)

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Abstract

This paper outlines the main issues related to two mass diseases-diabetes and COVID-19. We will learn how the demographic situation of diabetic patients living in the Republic of North Ossetia - Alania has changed during the quarantine period, what COVID-19 is and how IT affects the lives of diabetic patients, what biochemical processes occur in an infected body with an increased amount of glucose in the blood, and what prevention measures are recommended to follow.

Аннотация

В этой статье излагаются основные проблемы, связанные с двумя массовыми заболеваниями-диабетом и COVID-19. Мы узнаем, как изменилась демографическая ситуация больных сахарным диабетом, проживающих в Республике Северная Осетия - Алания в период карантина, что такое COVID-19 и как он влияет на жизнь больных сахарным диабетом, какие биохимические процессы происходят в инфицированном организме при повышенном количестве глюкозы в крови, а также какие профилактические мероприятия рекомендуется соблюдать.

Keywords: COVID-19, virus, diabetes mellitus, demographic situation of patients, mortality, pandemic, COVID-19 prevention, prevention proposals.

Ключевые слова: COVID-19, вирусы, сахарный диабет, демографический статус больных, смертность, пандемия, профилактика COVID-19, профилактические предложения.

Актуальность данной работы заключается в том, что сахарный диабет является опасным заболеванием, несущим непоправимые последствия для человеческого организма, но в 2020 году мир узнал новый, незнакомый человечеству вирус—Covid-19, который унёс миллионы жизней. Как оказалось, более подвержены влиянию вируса люди, имеющие такие хронические заболевания как: ВИЧ, СПИД, гепатит, туберкулёз, сахарный диабет.

Меня заинтересовало влияние Covid-19 на демографическое положение лиц, страдающих диабетом, так как республика Северная Осетия-Алания является лидером по количеству людей, страдающих данным заболеванием, следовательно, и опасность заражения, а в последствие смерти от

COVID-19 у диабетиков, живущих в данном регионе выше, чем у больных, проживающих за ее пределами.

Цель работы: изучить влияние нового вируса COVID-19 на демографическое положение людей, страдающих диабетом, которые проживают в РСО-Алании. В связи с поставленной задачей необходимо разобраться в том, что из себя представляет Covid-19, что такое сахарный диабет, как ведёт себя вирус в организме с повышенным содержанием глюкозы в крови, что произошло с демографией больных диабетом за период пандемии и какие меры по профилактике COVID-19 необходимо предпринять.

Итак, особо подвержены влиянию вирусов люди, имеющие хронические заболевания, одним из которых является сахарный диабет. При диабетической патологии новый вирусный штамм представляет большую опасность по следующим причинам: высокий риск заражения крови, сложное затяжное течение пневмонии, а также высокая вероятность дыхательной недостаточности. Давайте разберёмся в том, что из себя представляет коронавирус.

COVID-19 – это острая респираторная вирусная инфекция, осложнением которой является вирусная пневмония, влекущая за собой угрожающее жизни воспалительное поражение легких или дыхательную недостаточность, с риском смертельного исхода заболевания.

Передача инфекции происходит воздушно-капельным путём при чихании или кашле от одного человека к другому. Возможен контактно-бытовой путь передачи. Основными симптомами заболевания являются высокая температура тела (38-39° C), кашель (сухой или влажный, но мокроты не очень много), чувство сдавленности в области грудной клетки, затруднённое дыхание, мышечная и головная боль. Начало заболевания характеризуется по-

явлением жидкого стула, тошнотой, рвотой, снижением аппетита. Но данная инфекция опасна не только поражением органов дыхания, она действует на весь организм. Диабет в свою очередь — заболевание, развивающееся в тех случаях, когда поджелудочная железа не вырабатывает достаточное количество инсулина или когда клетки организма становятся резистентными к нему (не чувствительными) Инсулин — это гормон, который регулирует уровень содержания сахара в

крови. Общим результатом неконтролируемого диабета является гипергликемия, или высокий уровень содержания глюкозы в крови, которая в свою очередь способна пагубно влиять на многие системы организма, но больше всего страдает кровеносная и нервная. Диабет сопровождается быстрым утомлением, постоянной жаждой, частым мочеиспусканием, ухудшением зрения, скачками давления, плохим заживлением ран на коже, осложняется ожирением, сердечной, почечной недостаточностью, но самое главное - очень низким иммунитетом.

По данным, взятым в эндокринологическом диспансере Северной Осетии количество больных в нашей республике на душу населения больше, чем в СКФО и РФ:

Год	РФ	СКФО	РСО-Алания
2019	2892,8	20963	3105,8
2020	3146,3	2285,8	3300,0

Поэтому, жителям Северной Осетии необходимо более осторожно относиться к здоровью окружающих, среди них могут быть диабетики. Вообще сам по себе диабет чреват осложнениями: у многих проблемы с сердцем, сосудами, давлением, ослаблен иммунитет. Риск подхватить вирус у таких людей в 10 раз выше, а в случае инфицирования тяжелое течение COVID-19 у диабетиков встречается вдвое чаще.

При сахарном диабете новый вирусный штамм представляет большую опасность по следующим причинам: высокий риск заражения крови, сложное затяжное течение пневмонии, а также высокая вероятность дыхательной недостаточности.

Следовательно, если здоровый организм еще в состоянии самостоятельно справиться с COVID-19, то у пациентов с коронавирусом и сахарных диабетом большая вероятность получить серьезные осложнения, вплоть до летального исхода. Так же при диабете страдает сосудистая стенка: в случае

наличия такого комарбидного фона в виде сахарного диабета действие вируса в разы увеличивается. Заболевание протекает крайне тяжело, с выраженной полиорганной недостаточностью, но важно понимать, насколько запущен диабет у COVID-пациента, возможно ли контролировать уровень сахара в крови. Так, например, вероятность летального исхода у пациентов с высоким уровнем сахара в крови намного выше чем у людей, которые контролируют сахар и следят за своим питанием. Сложнее коронавирус протекает у людей, которые зависят от инсулина (диабет 1 типа), но многое зависит и от индивидуальных особенностей организма, и от дополнительных факторов риска. При заражении COVID-19 важен постоянно контролировать уровень сахара в крови, своевременно корректировать гликемический индекс. Иначе в человеческом организме создается благоприятная среда для размножения инфекции, заболевание

трудно поддается лечению, буквально разрушает без того ослабленный организм.

Больные особенно чувствительны к вирусам за счет снижения иммунной системы, уменьшения количества антител. Врачи связывают осложнение течения вирусной инфекции на фоне метаболического синдрома постоянным приемом инсулина, препаратов для антигипертензивной терапии.

В первые дни заражения коронавирусом симптомы у диабетиков первого и второго типа не отличаются специфичностью, но постоянно нарастают. Кашель становится более частым, сопровождается болью в грудной клетке, одышкой. Указывать на COVID-19 могут боли в мышцах, суставах, больные перестают чувствовать запахи, вкусы, исчезает обоняние, нарушается стул, появляется тошнота.

Развитие осложнений, возникших при пневмонии, характеризуется учащением пульса, одышкой даже при отсутствии физической активности, усилением носогубного треугольника. Больным коронавирусом и сахарным диабетом показан обильный питьевой режим, прием иммуномодулирующих препаратов для стимуляции системного иммунитета. Больным рекомендуется постоянно контролировать уровень гликоиндекса, так как резко возрастает угроза коматозного состояния, кетоацидоза.

Министерством здравоохранения Северной Осетии за период пандемии было зарегистрировано 70 пациентов умерших от COVID-19, 14 из которых были больны Сахарным диабетом что, составляет 20% из общего числа умерших. Данная статистика позволяет сделать вывод: необходимо задуматься какую опасность несёт COVID-19 для больных СД и предпринять меры для сохранения демографии населения.

Мы решили провести социологический опрос среди жителей Северной Осетии, страдающих сахарным диабетом. В связи с тем распространили анкеты, в которых поинтересовались: насколько серьезно больные СД относятся к новому вирусу, соблюдают ли они самоизоляцию, носят ли маски в общественных местах, нуждаются ли в посещении врачей в период самоизоляции.

По итогам опроса мы обнаружили, что 70% диабетиков не понимают насколько опасен COVID-19 для их здоровья, всего 20% соблюдают самоизоляцию, только 60% носят маски в общественных

местах и целых 80% нуждаются в консультациях врачей.

Проанализировав данные опроса, мы пришли к выводу, что для поддержания демографического положения в Северной Осетии необходимо предпринять профилактические меры.

Нами предлагается обязать СМИ распространять информацию об опасности заражения диабетиков новым вирусным штаммом, призвать здоровых граждан внимательнее относиться к близким с сахарным диабетом, обеспечить всех, стоящих на учёте в эндокринологическом диспансере многоразовыми масками и антисептиками, врачам проводить онлайн консультации, для того чтобы больные лишней раз не покидали жилище и не взаимодействовали с возможными носителями вируса.

Самым больным рекомендуем без надобности не выходить из дома, носить маски в общественных местах, ежедневно проводить анализ сахара в крови, не забывать пить витамины для поддержания иммунитета, регулярно проветривать помещение, прислушиваться к рекомендациям врачей, следить за питанием, не нарушать диету.

Только соблюдая эти несложные правила, мы сможем предотвратить ухудшение демографического положения республики Северная Осетия-Алания.

Пандемия несомненно сказалась на демографическом положении больных сахарным диабетом, 20% умерших от Covid-19 граждан страдали данным хроническим заболеванием. Так как на территории Северной Осетии и без того высокий уровень больных диабетом, мы должны более ответственно относиться к их здоровью особенно в период пандемии, им в свою очередь необходимо прислушаться к рекомендациям. Только так мы сможем остановить спад демографии диабетиков по время пандемии COVID-19.

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NEURAL NETWORKS IN ECONOMIC ANALYSIS: PROS AND CONS

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НЕЙРОННЫЕ СЕТИ В ЭКОНОМИЧЕСКОМ АНАЛИЗЕ: ПЛЮСЫ И МИНУСЫ

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Abstract

The article discusses the use of neural networks in economic analysis. In Economics, artificial intelligence is used to optimize production, analyze product and financial flows, analyze marketing research, and even predict the behavior and reaction of the target audience to the release of new products. Only a wide range of tasks solved by neural networks is considered. Conclusions are given about the direction of the possibility of using neural networks in the direction of a common management and software model-the information environment used by enterprises in the future.

Аннотация

В статье рассмотрены вопросы применения нейросетей в экономическом анализе. В экономике искусственный интеллект используется для оптимизации производства, анализа товарных и финансовых потоков, анализа маркетинговых исследований, и даже прогнозирования поведения и реакции целевой аудитории на выпуск новых продуктов. Рассмотрен круг задач решаемых нейронными сетями. Даны заключения о возможности использования нейросетей в общей управляющей и программно-информационной среде предприятия.

Keywords: select neural network technologies, neural network roll theoretical, neuropackage, mathematical take models and methods for modeling then, computational techno-knowledge Logies, instrumental systems for neural network evaluation analysis.

Ключевые слова: нейросетевые технологии, нейронные сети, нейропакет, математические модели и методы моделирования, вычислительные технологии, инструментальные системы нейросетевого анализа.

Нейросетевые технологии предоставляют сегодня широкие возможности и в настоящее время широко используются при решении самых разных задач. Они активно применяются там, где обычные алгоритмические решения оказываются неэффективными или вовсе невозможными. В мире накоплен громадный опыт применения нейросетей. Это автоматизация процессов распознавания образов, адаптивное управление, аппроксимация функционалов, прогнозирование, создание экспертных систем, организация ассоциативной памяти и многие другие приложения.

Нейронные сети - это компьютерные алгоритмы построенные по принципу работы человеческого мозга, которые позволяют анализировать колоссальные объемы информации. Нейронные сети не программируются, а обучаются по тому же принципу что и человек, и так же как человек они принимают решения на основе предыдущего опыта. Задачи по вычислению компьютером решаются за доли секунды в отличие от человека, но распознавание образов и анализ данных может занимать иногда по несколько дней. С помощью нейронных сетей получилось использовать все преимущества работы компьютера и мозга. За последние несколько лет нейронные сети нашли применение во многих сферах нашей жизни к некоторым из них можно отнести обработку текстов, распознавание образов, анализ данных, принятие некоторых решений, анализ и прогнозирование событий на основе имеющихся данных.

Нейронные сети применяют во многих сферах жизни людей, и экономика не стала исключением. В экономике искусственный интеллект уже используется для оптимизации производства, анализа товарно-финансовых потоков, анализа маркетинговых исследований, и даже прогнозирования поведения и реакции целевой аудитории на выпуск новых продуктов.

Нейросети отлично показывают себя в решении различных экономических задач. Являются незаменимыми при обработке больших объемов данных, без которых зачастую бывает непросто дать

адекватную оценку ситуации на рынке и в компании. Все эти примеры говорят о том, что нейронные сети неизбежно придется изучать, развивать и больше внедрять на практике. Нейросети используют для автоматизации различных бизнес-процессов что положительно сказывается на работе компании: экономится время, деньги и человеческие ресурсы.

Данную технологию можно использовать для:

- анализа надежности компании и для определения вероятности возможности ее банкротства;
- банковским организациям для оценки риска предоставления клиенту кредита и оценки его платежеспособности;
- прогнозирования изменения стоимости акций в определенный период времени;
- прогнозирования риска намеченной сделки;
- предсказания возможных мошеннических действий;

В то время как на западе применение нейронных сетей уже достаточно обширно, в России же еще некоторое время назад найти хороший нейропакет было весьма непросто. Однако к настоящему времени появились обнадеживающие результаты решения различных аналитических задач с элементами нейротехнологий в условиях российской действительности. Сегодня аналитики могут выбрать себе систему построения прогнозов соответственно решаемым задачам. Широкий круг задач, решаемый нейронными сетями, не позволяет в настоящее время создавать универсальные, мощные сети, вынуждая разрабатывать специализированные сети, функционирующие по различным алгоритмам. [1] Тем не менее, тенденции развития нейросетей растут с каждым годом. Нейронные сети вошли в практику везде, где нужно решать задачи прогнозирования, классификации или управления. Такой впечатляющий успех определяется причинами:

1. Богатые возможности.

Нейронные сети - исключительно мощный метод моделирования, позволяющий воспроизводить чрезвычайно сложные зависимости. В частности,

нейронные сети нелинейны по своей природе. На протяжении многих лет линейное моделирование было основным методом моделирования в большинстве областей, поскольку для него хорошо разработаны процедуры оптимизации. В задачах, где линейная аппроксимация неудовлетворительна (а таких достаточно много), линейные модели работают плохо. Кроме того, нейронные сети справляются с "проклятием размерности", которое не позволяет моделировать линейные зависимости в случае большого числа переменных.

2. Простота в использовании.

Нейронные сети учатся на примерах. Пользователь нейронной сети подбирает представительные данные, а затем запускает алгоритм обучения, который автоматически воспринимает структуру данных. При этом от пользователя, конечно, требуется какой-то набор эвристических знаний о том, как следует отбирать и подготавливать данные, выбирать нужную архитектуру сети и интерпретировать результаты, однако уровень знаний, необходимый для успешного применения нейронных сетей, гораздо скромнее, чем, например, при использовании традиционных методов статистики. Совершенно очевидно, что свою силу нейронные сети черпают, во-первых, из распараллеливания обработки информации и, во-вторых, из способности самообучаться, т.е. создавать обобщения. Под термином обобщение понимается способность получать обоснованный результат на основании данных, которые не встречались в процессе обучения. Эти свойства позволяют нейронным сетям решать сложные задачи, которые на сегодняшний день считаются трудноразрешимыми. Однако на практике при автономной работе нейронные сети не могут обеспечить готовые решения. Их необходимо интегрировать в сложные системы. [2]

Нейронные сети привлекательны с интуитивной точки зрения, ибо они основаны на примитивной биологической модели нервных систем. Нейронные сети представляют собой новую и весьма перспективную вычислительную технологию, дающую новые подходы к исследованию динамических задач в финансовой области. Первоначально нейронные сети открыли новые возможности в области распознавания образов, затем к этому прибавились статистические и основанные на методах искусственного интеллекта средства поддержки принятия решений и решения задач в сфере финансов.

Способность к моделированию нелинейных процессов, работе с зашумленными данными и адаптивность дают возможности применять нейронные сети для решения широкого класса финансовых задач. В последние несколько лет на основе нейронных сетей было разработано много программных систем для применения в таких вопросах, как оценка вероятности банкротства банка, операции на товарном рынке, оценка кредитоспособности, контроль за инвестициями, размещение займов.

На рынке появляется огромное количество как универсальных нейропакетов, которые зачастую

используются для решения задач технического анализа, так и специализированных экспертных систем и нейропакетов для решения многих других, зачастую более сложных и трудно формализуемых задач из финансовой области. Те банки и крупные финансовые организации, которые уже используют нейронные сети для решения своих задач, понимают, насколько эффективным средством могут быть нейронные сети для задач с хорошей статистической базой, например, при наличии достаточно длинных временных рядов, в том числе и многомерных. При этом в качестве потребителя такой информации выступают либо люди, хорошо знающие потенциальные возможности нейронных сетей, либо решающие такие задачи традиционными методами и вынужденные искать другие, более эффективные способы решения задач.[3]

Нейронные сети хорошо работают в условиях резких движений цен, зашумленности и противоречивости данных и являются отличным дополнением к классическому теханализу, который на современных рынках все чаще перестает работать или выдает противоречивые сигналы. Развитие нейронных сетей вызвало немало энтузиазма и критики. Некоторые сравнительные исследования оказались оптимистичными, другие - пессимистичными. Множество надежд в отношении нейронных сетей сегодня связывают именно с аппаратными реализациями, но пока время их массового выхода на рынок, видимо, еще не пришло. Но все это только вопрос времени. [4] Разработка теоретических аспектов создания, обучения и функционирования нейросетей, нейрокомпьютеров и нейроинтеллекта представлена в фундаментальных работах таких авторов, как Р. Вильяме, П.Вербос, Р.Земел, Йох-Хан Пао, Т. Кохоннен, Э.Минай, Ф.Розенблатт, Е.Хинт. Различные аспекты приложения моделей искусственного интеллекта к проблемам управления и прогнозирования поведения анализа хозяйственных структур, представлены в работах работы А.Н.Аверкина, Р.А. Алиева, А.Н. Борисова, Т.А. Гаврилова, В.И. Глушкова, В.Н. Захарова, И.В. Ежковой, В.В. Ермоленко, О.И. Ларичева, Б.Г.Литвака, К.Е. Левитина, В.А. Маковского, В.П. Мешалкина, К. Нейлора, Э.В. Попова, Д.А. Поспелова, В.Ф. Хорошевского.

Однако, следует отметить, что значительное количество работ, посвященных моделированию экономических систем, не касающихся проблематики искусственного интеллекта, связаны в основном с использованием динамических моделей управления, задач оптимизации, моделей и алгоритмов принятия решений на разных уровнях промышленно экономической системы. Работы же в области искусственного интеллекта для анализа больших хозяйственных структур, как правило, касаются приложения моделей и методов обработки знаний к конкретным управляемым или исследуемым объектам. Вместе с тем, пока недостаточное внимание уделено теоретическим и методологическим основам неироомоделирования для анализа больших хозяйственных структур.

Интерес представляет также методология и технология включения таких моделей в общую управляющую и программно-информационную среду предприятия как объекта управления и создание теоретических основ для анализа больших хозяйственных структур на основе пространственно-распределенного представления материального потока с использованием комплекса взаимодействующих нейросетей.

Достижение поставленной цели требует решения следующих задач:

- Разработки подхода к созданию инструментальной системы нейросетевого анализа, который позволит принять решения на основе моделирования и анализа факторов экономической среды в условиях влияния факторов риска, для решения неординарных и слабоформируемых задач;

- Формулировки проблемы выбора интеллектуальной инструментальной системы принятия решений к нейросетевому прогнозированию финансовых временных рядов и оценки кредитоспособности, в условиях влияния факторов неопределенности, большой размерности задачи.

- Разрешения проблемы сопряжения инструментальных средств выбора модели с существующими технологиями обработки экономической информации.

Теоретическая значимость поставленных задач заключается в том, что предложенные решения выступают в качестве научной основы дальнейшего развития парадигмы нейросетевого моделирования для анализа больших хозяйственных структур и управления экономической системой предприятия, изучение которой требует моделирования факторов экономической среды, с учетом трудно формализуемых, вербальных и "мягких" факторов в условиях ограниченности статистических данных, неэргодичности и нестационарности материальных и финансовых потоков.[5]

К основным преимуществам нейронных сетей можно отнести:

- способность обучаться на множестве примеров в тех случаях, когда неизвестны закономерности развития ситуации и функции зависимости между входными и выходными данными. В таких случаях (к ним можно отнести до 80% задач финансового анализа) неприменимы традиционные математические методы;
- способность успешно решать задачи, опираясь на неполную, искаженную и внутренне противоречивую входную информацию;
- возможно
- сть эксплуатации обученной нейронной сети любыми пользователями;
- возможность исключительно легко подключать нейросетевые пакеты к базам данных, электронной почте и автоматизировать процесс ввода и первичной обработки данных;
- внутренний параллелизм, присущий нейронным сетям, позволяющий практически безгранично наращивать мощность нейросистемы, т.е. сверхвысокое быстродействие за счет использова-

ния массового параллелизма обработки информации;

- толерантность к ошибкам — работоспособность сохраняется при повреждении значительного числа нейронов;
- способность к обучению — программирование вычислительной системы заменяется обучением;
- способность к распознаванию образов в условиях сильных помех и искажений.

Данные подходы определяют стратегическое направление в области разработки

методов более полного учета существенных факторов внутренней и внешней среды, обуславливающих формирование эффективных решений в экономической системе.

Все это позволит разработать и внедрить в практику нейросетевые методы анализа больших хозяйственных структур в условиях динамики экономической системы в целом. Математические модели и методы позволяют принимать решения как в условиях, когда влияющие факторы известны, так и в условиях ограниченного наличия информации, следовательно, возможностью реального применения нейронных сетей и их взаимодействия с информационной системой предприятия. Исследования в области нейронных сетей в основном достаточно наглядны. По сравнению с другими вычислительными методами в статистике и науке они имеют значительные преимущества. Так, у моделей на основе нейронных сетей очень гибкие теоретические требования; кроме того, им необходимы совсем небольшие объемы предварительных знаний относительно формирования задачи.[6] Жесткая конкуренция ставит перед современным бизнесом проблемы, которые могут быть эффективно решены современными средствами анализа данных. Технология нейронных сетей позволяет анализировать информацию, прогнозировать развитие и минимизировать риски при принятии решений, что позволяет строить бизнес на строго научной основе достаточно грамотно и эффективно.

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