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**SECURITY MANAGEMENT OF THE XXI  
CENTURY: NATIONAL AND GEOPOLITICAL  
ASPECTS. ISSUE 3**

Collective monograph

In edition I. Markina, Doctor of Economic Sciences, Professor



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## PREFACE

In the early 21st century, the world faces with cardinal transformations accompanied by changes in geopolitical configurations, integration processes and other changes that affect the state of national and geopolitical security. The events of the last decade have revealed an exacerbation of the problems of global security and the ambiguous impact of the processes of globalization on the development of different countries. Under the circumstances, the rivalry between the leading countries for redistribution of spheres of influence is stirring up and the threat of the use of force methods in sorting out differences between them is increasing. The global escalation of terrorism has become real, the flow of illegal migration and the probability of the emergence of new nuclear states are steadily increasing, and international organized crime is becoming a threat. In addition, in many countries there is an exacerbation of socio-political and socio-economic problems that are transforming into armed conflicts, the escalation of which is a real threat to international peace and stability. These and other factors have led to the fact that the potential of threats to global and national security has reached a level where, without developing a system state policy to protect national interests and appropriate mechanisms of its implementation, there may be a question of the existence of individual countries as sovereign states.

The threat of danger is an immanent, integral component of the process of civilization advancement, which has its stages, parameters and specific nature. Obviously, the problem of security in general, and national one in particular, should be objectively considered in terms of its role participation in the development process, that is, to set it up as both destructive and constructive functions (as regards the latter, it is necessary to emphasize the undeniable fact that the phenomenon of safety is based on counteraction to the phenomena of danger, the necessity of protection from which exactly stimulates the process of accelerating the search for effective mechanisms of counteraction).

Taking into account the fact that the traditional means of national and geopolitical security as a mechanism in its various models, forms, systems have reached their limits, since they do not contribute to solving the problems of globalization of the civilization development, there is an objective need to form a paradigm of security management in the 21st century, which aims to confront destruction processes; to harmonize activities of socio-economic systems: society, organization, the state, the world. The joint monograph «Security management of the XXI century: national and geopolitical aspects. Issue 3» is devoted to these and other problems. The progress in the development of the theory of security management on the basis of the analysis of theoretical and methodological works of scientists and the experience of skilled workers presented in the joint monograph creates opportunities for the practical use of the accumulated experience, and their implementation should become the basis for choosing the focus for further research aimed at improving the security

management system at the national and international levels. In the joint monograph, considerable attention is paid to solving practical problems connected with the formation of the organizational and legal mechanism of organization of the security system in terms of globalization by developing methods, principles, levers and tools of management taking into account modern scientific approaches.

In the monograph, the research results and scientific viewpoints of the authors of different countries are presented in connection with the following aspects of security management: national security, food, environmental and biological security, economic and financial security, social security, personnel and education security, technological and energy security, information and cyber security, geopolitical security. The authors have performed a very wide range of tasks – from the formation of conceptual principles of security management at the micro, macro and world levels to the applied aspects of management of individual components of national security.

The monograph «Security management of the XXI century: national and geopolitical aspects. Issue 3» consists of four parts, each of which is a logical consideration of the common problem.

The structure of the monograph, namely the presence of particular parts, helps to focus on the conceptual issues of the formation and development of national, economic, financial, social, food, environmental, biological, personnel, educational, technological, energy, information, geopolitical security, and problems of the maintenance of the practical process of application of the developed cases.

The results of the research works presented in the joint monograph have a research and practice value.

The advantage of the joint monograph is the system and logic of the structure, the simplicity and accessibility of the material presentation, the presence of examples and illustrations.

We believe that the monograph will become one more step towards a scientific solution of the problems concerning the formation of an effective system of security management under trying circumstances of globalization.

Publication of the monograph «Security Management of the XXI century: National and Geopolitical Aspects» is scheduled to be annual. Currently, Issue 3 is offered to our readers.

*With best regards,*

*Iryna Markina,*

*Honored Worker of Science and Technology of Ukraine,*

*Doctor of Economic Sciences, Professor,*

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*To the bright memory of the outstanding scholar Iryna Markina  
We are missing you... remember... appreciate...*

Science is a peculiar branch of human activity that has a notable impact on the development of society. Iryna Anatoliivna Markina, an outstanding scientist, Doctor in Economics, Professor, Honored Worker of Science and Technology of Ukraine, made an indispensable contribution to the development of modern management science.

I. Markina is the founder of the scientific school Methodology and Practice of Modern Management, which provides scientific staff training, raising the quality level of scientific and pedagogical staff of higher educational institutions, holding scientific events, in particular, scientific and practical conferences, round-tables, training workshops, etc. Under her supervision, about 50 candidate theses and 4 doctoral dissertations were prepared and defended.

Professor I. Markina initiated the annual international scientific-practical conference «Management of the XXI century: globalization challenges» and the All-Ukrainian scientific-practical Internet conference «Management of economic activity resource provision in real sector enterprises» at the Department of Management of Poltava State Agrarian Academy. Leading scientists from Ukraine and the CIS countries, EU countries, the USA participate actively in these scientific events. Edited by Professor I. Markina, more than 30 monographs were published. In terms of the approved research topics with state registration and assignment of the ISBN international standard number, 7 collective monographs, edited by Professor I. Markina, were published in English. The leading scientists and graduate students submitted their research papers to the monographs. Professor Markina's school is distinguished by the freedom of thought, creativity, and the search for new ideas.

The role of I. Markina's scientific school of management is remarkable for the development of science not only because the professor managed to create a new effective methodology in this field of knowledge but also because a great number of her followers continue implementing its basic approaches.

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**«Anyone who is confident in  
their own safety is absolutely  
defenseless»**

# **PART 1. THE DEVELOPMENT OF THE MODERN PARADIGM OF SECURITY MANAGEMENT AT THE NATIONAL AND GEOPOLITICAL LEVELS**

## **CONTROL RESTRICTIONS OF THE MANAGEMENT SAFETY**

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Preparedness managers to additional actions initiated by the complication of activities against the facilitation of awareness, focused on the creation of a multi-level management system with feedback. Company controllability is considered from the point of the sustainable process of achieving results. Their sustainability is provided due to the control system ability to preserve its integral quality under the influence of the factors of the unknown origin. This is reached by means of the business-processes integral reproduction technologies through the elimination of uncertainties making the processes unstable. Such measures are worked out at the preliminary stage of developing control system on the base of the business-processes management technologies. As a result the mechanisms taking into account the loss of value, because of the system errors of the unstable origin, are created. These mechanisms provide the readiness of management to take decisions in the non-standard situations.

Business controllability is determined by the increase in qualitative definiteness by decreasing a number of vagueness preventing processes' improvement but not ensuring it's non-imperfectness by the correspondence to tolerances.

Some effects of various origins influence the activity of an enterprise in the process of its functioning. Such effects depend on the openness level of management system being developed, and on the competency of its developers. Classification of the scales of management threatening factors is made exactly on the basis of these effects. The notion of two classes of effects classified according to the degree of their revelation, and the scales of their manifestation, is introduced to this work. The suggested classes are

named according to the depth of plunging into the problem to neutralize it.

### 1. Effective Measures of Failures' Description

The controllability of the enterprise is provided not on the account of gliding along the surface, even if it sounds tempting, but through the profound factors revealing.

Thus, the first class of effects is named “superficial failures”. Such effects are revealed quite easily, and enterprise management is normally exercised at this level. Managers usually focus their attention exactly to superficial failures and strive to eliminate these effects. Practice shows that their actual influence on business is insignificant, and the improvements obtained are negligible.

The second class of effects is “deep-seated failures”. As a rule, effects of this kind are of non-systemic nature. The nature of their origin is obscure, calling for scrupulous and costly investigation. Since such effects are unpredictable, it is quite difficult to reveal them at the design stage of business. Nevertheless, the enterprise management must reveal deep-seated failures before the functioning starts, since those inflict serious damage on business and even lead to bankruptcy. Neutralizing such effects is quite costly. However, the efficiency of traditional efforts is insignificant due to wrong interpretation and lack of readiness from staff.

### 2. Classification of Failures

Enterprise managers should have at their disposal some means of defining apturtenance to a definite class of failures. This motivates managers to study the nature of failures more closely and to reveal the main properties and features providing a key to understanding of reasons and mechanisms of the development of business processes [1].

Let us examine the essence of various classes of failures as presented in Table 1 below.

Determination of failure class is an important goal, since error may result in taking wrong managerial decisions. Let's consider an example of erroneous interpretation of failures. Assumingly, some sales volume reduction is observed at an enterprise. Managers relate this fact to the market situation change. They take some steps to lower the production volumes and shift over to other kinds of commodities. However, the actual reasons for this deviation are as follows:

- purchasing raw materials at low prices, with the subsequent worsening of the quality of end product;
- high liquidity of staff resulting in insufficient qualification of employees;
- launching aggressive promotion campaign by competitors to attract new customers, thus, affecting the income of the enterprise considered.

### 3. Significance of the stating the failure class

The task of managers comes to the work on the processes improvement

by supporting them in a stable state. The estimation of stability comes to the determination of corridor in controllability parameters permissible mutability. Preliminarily it is necessary to determine tolerances' limits operationally including the requirements on their measurement as well as the rules of possible actions on the satisfaction of tolerances requirements at the very beginning.

**Table 1**

*The essence of various classes of failures*

Failures' Objects	Failures' Classes	
	Deep-seated failures	Deep-seated failures
Enterprise incomes	Insignificant reduction of sales volume	Reduction of sales volumes to a critical denomination
Current expenses of enterprise	Tendency towards the growth of variable expenses	High ratio of operational leverage accompanied by intense growth of the level of variable expenses
Enterprise asset structure	Reduction of autonomy ratio	Growth of financial leverage ratio and lack of the effect of financial leverage
Structure of enterprise assets	Reduction of absolute solvency ratio	Absolute insolvency due to lack of funds
Structure of financial liabilities of enterprise concerning urgency of cancellation	Increasing the sum and the percentage of short-term financial liabilities	High ratio of urgent financial liabilities
Enterprise net cash flow	Lowering cash flow value	Negative value of cash flow
Manifestation scale	Leading to insignificant drop of business value. Reflecting on one class of indices (liquidity, solvency, autonomy etc.)	Leading to destruction of business value. Claiming for big resources to be revealed and eliminated. Reflecting on all classes of activity indicators.
Error location	Some local detection and elimination of failures is possible	Revelation is quite difficult (all the system architecture needs to be checked).
Direction of process development	Horizontal (embracing one layer enterprise activities)	Vertical horizontal (going through the entire activity of enterprise from top to toe)

Managers take superficial failures being of external nature, for deep-seated ones. In this case, some actions have been taken that have changed

the enterprise strategy. At that, it is planned to develop the enterprise in a wrong direction [2]. Therefore, intervention into the stable process was exercised, while the existing internal problems remain unsolved. In the course of modification, some errors were made, and, when the revealed errors were being eliminated, some new errors were entered into the system. Such actions lead to accumulation of superficial failures. A big flow of changes implies a very costly attendance. As a result, the complex influence of superficial failures may paralyze the managers' activities. However, their things are much worse if some errors of deep-seated origin have been overlooked. Their consequences manifest themselves after a significant period of time, and the managers are totally unprepared to neutralize them. This effect brings about the untimely diagnostics of architecture errors, with the subsequent costly reform of the entire system of management or its separate parts [3]. The existence of such errors also affects innovation improvements. Against the background of deep-seated failures, innovations are assessed wrong. There is no desired efficiency when the expected time comes.

The determination of tolerances is used for revealing how the process occurs and how it could occur but not as the tool of a forced interruption in this process. One should conduct the determination of tolerances after the exclusion of all special defects having non-systematic origin.

#### 4. From Diagnostics to Improvement

The used methods of diagnostics of failures allow to estimate the innovation processes, which are suggested to be conducted at the enterprise. 3 main rules were proposed for their accomplishment.

Rule 1. The state of the system, corresponding to the deep-seated failure, needs to be immediate improved.

Rule 2. The improvement of management system is carried on neutralizing deep-seated failures and proving innovations.

Rule 3. The denomination of the value characterizing the proved innovation and leading to the deep-seated improvement is equal in module to the denomination of the value losses in case of the deep-seated failures.

Taking the developed rules into account, the examined enterprise introduced some innovational improvements of the management system (see Table 2).

The improvement status needed is determined according to the value of the rank defined:

- profound changes should be included into the company's development plan immediately;
- superficial changes will not be examined since they are classified as an intervention affecting sustainable process, - although some of them are subject to further investigation within the framework of the value concept

of management [7].

**Table 2**

*Working out and assessing innovational changes of management system*

<b>№</b>	<b>Improvement</b>	<b>Value change, %</b>	<b>Rank</b>	<b>Improvement status</b>	<b>Action status</b>
1.	Management development through specialized trainings	6,4	5	Superficial improvement	Reject
2.	Introduction of the system taking into account the influence of employee's executive discipline upon his (her) salary	14,7	3	Profound improvement	Accept
3.	Development of staff motivation system aimed at achieving operational efficiency	8,2	4	Superficial improvement	Reject
4.	Using a consulting event to develop aggressive marketing campaign	1,7	6	Superficial improvement	Reject
5.	Service restructuring	2,2	6	Superficial improvement	Reject

Thus the implementation of managerial principles forming algorithm in the technology of running enterprise's valuation led to the increase of business stability. Such an increase was obtained by quality improvement of business information environment, declining variants efficient from the position of value, appearance of options of substantiated given norms

The suggested approach helps enterprise management to reveal negative impacts which are subdivided according to the level of their problem immensity. Furthermore, the approach described allows one to be hardened to errors entailing drastic consequences. Moreover, managers now have at their disposal some new tools allowing them to make diagnostics of existing failures and check prospective improvements of management system. Based on these, controllability of enterprise is enhanced.

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## **CONCEPTUAL FRAMEWORK FOR CORPORATE GOVERNANCE IN CRISIS PERIOD ON EXAMPLE OF HOSPITALITY INDUSTRY IN LATVIA**

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Since 2019, the pandemic caused by COVID-19 has caused a crisis in all spheres of life, there are many restrictions, including on crossing national borders and moving within one country. To limit the spread of the pandemic, many international measures have been adopted that have had a far-reaching, even catastrophic impact on tourism and the hospitality business. Many hotels around the world are in danger of bankruptcy.

Although it is internationally recognized that Latvia is relatively good at dealing with this crisis situation, almost all hotels in Latvia have suffered heavy losses. The unfavorable economic situation forces hotel managers to reconsider their development strategy, namely to optimize their activities by reducing costs and using marketing tools. Those companies that manage

to reduce costs without losing the quality of services provided are most in demand and competitive during the crisis.

The topic of this study: impact of COVID-19 to the hospitality industry in Latvia and related crisis management measures.

Object of study: hospitality business in Latvia.

Subject of the study: anti-crisis management at the macro level caused by the impact of COVID-19.

The question of the study: how does spread of COVID-19 pandemic impact hospitality industry in Latvia and how to evaluate crisis management measures implemented in that area of business with an aim to minimize mentioned impact?

The authors have analyzed the conceptual foundations of anti-crisis management in general, taking into account the current situation in the hospitality industry of Latvia in the context of the crisis caused by COVID-19 in particular.

The study was conducted from April 1, 2020 to October 17, 2020. The authors were using the following methods of data analysis: collection and synthesis of statistical data, interviews with specialists.

Literature review: Essence, Goals and Functions of Crisis Management. Anti-crisis management as an independent field of scientific knowledge

At any stage of the economic cycle and in any economic context, the process of crisis management has a certain theoretical basis. This type of management is one of the economic disciplines, such as economic theory and political economics, which serves as a methodological basis for it, and as an applied component - the theory of management, the foundations of restructuring and financial analysis. It should be emphasized that crisis management is an independent field of scientific knowledge, which is determined by law and has its own specifics.

In the scientific literature there are different approaches to the concept of crisis management, which are presented in Table 1.

All market economy actors operating at the macro and micro levels, depending on the phase of the economic cycle, use different systems and strategies to ensure their sustainability. So A. Belyaev in the context of the crisis considers management as a process of financial recovery of the company, i.e. the author considers this process only at the level of an economic unit (micro level). This definition is flawed, since the author narrows the concept of crisis in it, without indicating the reason for its formation, describing in detail the process of recovery of the company (Arutyunov, 2016).

E. Zharova sees anti-crisis management as a set of problems at the macro and micro levels. The inaccuracy of this definition is that this type of control is a set of tasks, not a set of solutions, because in fact management involves defining goals, tasks, types of solutions and means of overcoming

them (Burkeev, 2016).

**Table 1**

*Approaches to defining the concept of management in a crisis situation*

Source	Concept of management in a crisis situation
A. Belayev (Arutyunov Yu.A., Crisis management. Handbook 2016, p.52)	Process related to the company's financial recovery.
J.Zharova (Burkeev A.M. The Economic Mechanism of a Company's Anti-Crisis Management. Book, 2016, p. 27)	A complex of problems related to the state, economy, industry, organizations and people.
A. Bolshakov (Akhnovskaya I.A. Management of anti-crisis companies in an unstable economic environment // Young Scientist. 2015 № 2-6 (17), p. 915)	Elimination of possible market difficulties, bankruptcy, ensuring stable business conditions.
J. Miroshnichenko (Gorelikov K.A. Crisis Management. Handbook, 2016, p. 38)	A multi-dimensional, complex process that includes a specific marketing plan, specific financial procedures and emergency staff mobilization measures.
A. Gryaznova (Arsenova E.V., Kryukova O.G., Ryakovskaya A.N. Foreign practice of anti-crisis management. Handbook, 2016, p. 22)	A system of emergency management decisions and measures aimed at diagnosing, preventing, neutralizing and overcoming crisis phenomena and their causes.

*Source: Nikitina, 2018*

A. Bolshakov gives a more correct definition of “anti-crisis management”, pointing out both the essence of the concept (complexity) and the object (prevention), which affects both the economy as a whole (market) and a separate link (company). However, in the definition A. Bolshakov does not indicate a plan to eliminate problems and stabilize the economy, as a set of goals, tasks, solutions to eliminate the subject of influence, that is, the crisis itself (Akhnovskaya, 2015).

In the definition, A. Gryaznova reveals the subject of management in the form of a system of measures and decisions, describing in detail their tasks aimed at overcoming and neutralizing the object, i.e. the crisis, as well as its sources (causes). Of all the definitions given, this one most fully reveals the economic nature and content of the concept of “crisis management” (Arsenova et al, 2016).

Given the above approach to the definition of “crisis management”, one can formulate one more definition of this concept - a set of organizational

and economic measures to identify the causes of the crisis and ways of overcoming it by the subject of the socio-economic system.

#### Anti-crisis management at the macro level

The main goal of this management in stable working conditions at the national level is the implementation of a set of measures to prevent crisis phenomena aimed at economic growth, employment of the able-bodied population, stabilization of prices, stability of the national currency, foreign economic balance and other pressing tasks of material well-being.

The state should, first of all, ensure the creation of a legal basis for the functioning and development of the economy, as well as conditions for market actors at the macro and micro levels (Jiwang, et al, 2017).

At the macro level during the crisis, the main tasks of public administration are:

Elimination of causes and negative socio-economic consequences;

- stabilization of economic processes and recovery from crisis;
- providing conditions for the further development of the national economy.

- management objectives used in macro-level crisis situations:

- Reducing the decline in the industrial sector of the economy;
- stabilizing social production and ensuring growth rates to meet consumer demand for manufactured goods, vital services (medicine, education, culture, housing and communal services, etc.) (Lalond,2016).

The main task to achieve the main relevant management goals at the macro level in a crisis is to ensure the continuity of business development conditions:

- timely identification of potential threats to functional areas of business leading to its destruction or suspension, search for material, technical and financial resources for the implementation of its functional areas of development;

- creation of personnel redundancy and replacement system;

- ensuring the constant readiness of the personnel and material and technical base for the implementation of a set of measures to preserve the business unit (Alferov, 2018).

In accordance with the stated goals and objectives, management at the national level should create conditions for the activation and strengthening of entrepreneurship, especially innovation and investment, taking into accounts the stability of the national currency. This is achieved at the expense of a complex of monetary, credit and financial policies (Gorelikov, 2016).

Analysis of crisis management in the period of COVID-19 pandemic on example of the hospitality industry of Latvia

The first wave of growth in diseases caused by COVID-19 was a serious test of strength for many business units in the field of hospitality. So, in

March and summer, the amount of income in the hotel business was about 37-38% to the previous year (see Table 2), and in April and May hotels did not make a profit at all (see Fig. 1).

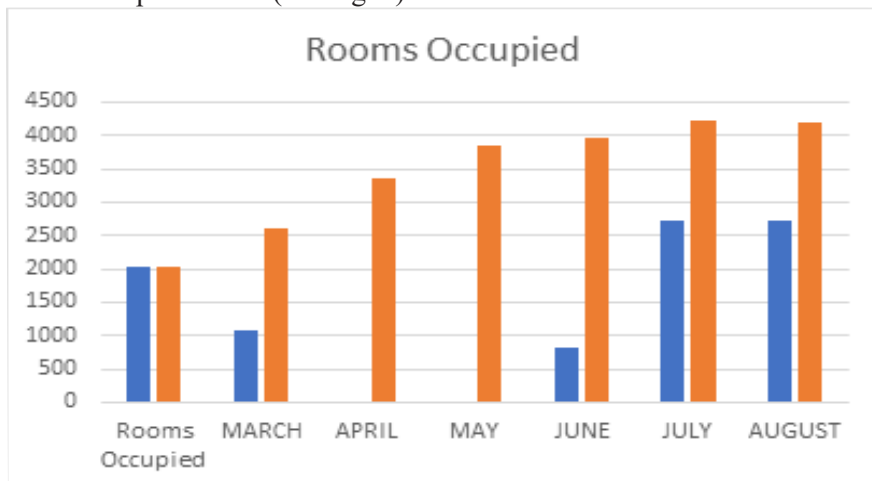


Fig. 1. Dynamics of hotel occupancy and economic losses due to the COVID 19 crisis from March 2020 to August 2020

Source: Central Statistical Bureau Latvia, 2020

Thus, the development of an optimal anti-crisis development plan is the main and only way for a hotel company to survive adverse crisis times. The problem of maintaining and developing the hotel business during the economic crisis has become a common urgent task for hotel owners both in the Latvian and global markets. In fact, during the crisis what was happening was adaptation of all hotel activities to new economic conditions with timely financial support from the state (Santos del Valle, 2020).

In September 2020, the second wave of growth in incidence rates began COVID-19 and the list of countries in which 14-day quarantine should be observed upon arrival grew many times (for example, as of 10.09.20. the only countries that it was possible to travel in and enter to Latvia from were Estonia, Lithuania, Cyprus, Finland). It is obvious that for hotel companies it was difficult to survive, many tourist enterprises began to close due to their inability to survive that period, since hotel occupancy dropped to an absolute minimum (on average from 3.00% to 10.00% maximum). The Government unfortunately did nothing during that period to support the tourism industry or its employees (only later 3.11.20. the Cabinet of Ministers decided on the necessary financial assistance). As a result of these bureaucratic costs in Riga, Tallink Hotel and Marriot were forced to announce their complete closure in October, the Wellton hotel chain merged its hotels and left only

Wellton by Riverside open (the rest of the hotels are closed), and in the Radisson hotel chain only Radisson Latvian and Radisson Elizabeth hotels remained open (the rest were closed).

**Table 2**

*Dynamics of hotel occupancy and economic losses due to the COVID 19 crisis from March 2020 to August 2020*

March	2020	2019	April	2020	2019	May	2020	2019
Occupied rooms	1089	2611	Occupiedrooms	0	3350	Occupiedrooms	0	3845
Room occupancy %	23.52	51.12	Room occupancy %	0	74	Room occupancy %	0	80
Total revenue	Less rev than37%	Total revenue	Less rev than100%	Total revenue	Less rev than100%			
ADR	76	72	ADR	0	72	ADR	0	94
Guests total	1274	3273	Guests total	0	4491	Guests total	0	5080
CXL Reservations	430	140	CXL Reservations	202	70	CXL Reservations	216	85
June	2020	2019	July	2020	2019	August	2020	2019
Occupied rooms	810	3968	Occupied rooms	2737	4216	Occupied rooms	2711	4204
Room occupancy %	17	90	Room occupancy %	61	90	Room occupancy %	59	90
Total revenue	less rev than 38 %	Total revenue	Less rev than 37 %	Total revenue	Less rev than 38 %			
ADR	52	87	ADR	50	95	ADR	48	95
Guests total	1255	5706	Guests total	4726	6317	Guests total	4576	6717
CXL Reservations	268	35	CXL Reservations	280	79	CXL Reservations	428	108

*Source: Central Statistical Bureau Latvia, 2020*

Taking into account the opinion of expert Janis Naglis, the president of the Latvian Association of Hotels and Restaurants (LVRA), a minimal restoration of tourist flow is expected, according to an optimistic scenario, around May 2021, and according to a moderately pessimistic one, not earlier than the spring of 2022. Since the beginning of the crisis COVID-19 in Rigamore than 20 hotels have closed their doors to customers. Some of them never resumed work after the first outbreak of the disease; many announced a temporary cessation of their activities (Latvian TV Daily News, 2020).

The future scenario of hotel closures is closely related to whether the industry can receive support from the state and municipality. Without support, the wave of hotel closures can continue, and from six to eight thousand hospitality workers will join the ranks of the unemployed.

The authors believe that in order to “hibernate” the entire tourism industry and thereby save it, the moratorium on insolvency should be extended to the

maximum extent possible. It is also necessary to find a solution that allows freezing payments on loans, utility payments and reducing real estate tax payments as much as possible. In addition, it was essential to develop a system of criteria that were close to those for downtime benefits in order to obtain salary grants for staff. “The hotel sector would be pleased if the Latvian government followed the example of other countries and applied a reduced value added tax rate of 5%,” said the executive director of the LVRA Santa Graikste in an interview (Latvian TV Daily News, 2020).

It should be noted that on November 3, 2020, the Cabinet of Ministers nevertheless approved the proposal of the Ministry of Economy to allocate 4,746,290 Euros to support hotels to cover operating costs, including staff salaries, utilities and various other payments. It is estimated that as a result of this decision, about 200 hotels in Latvia can receive support, so an average of 23,731 Euros can be allocated per applicant. Support for entrepreneurs will be available until June 2021 and is an extremely important measure to support the field of hospitality.

According to various experts, the impact of Covid-19 on the world economy cannot yet be estimated, so long as the forecasts are based only on the assumption that we may face an even more serious crisis than in 2009. And this is justified, because the Covid-19 pandemic has already caused serious damage to the real world economy, which we see in the form of a fall in national gross domestic product (GDP), a loss of millions of jobs and a fall in regular incomes of enterprises and citizens, and consumption. And in addition to all this, the «fear factor» of the corona virus causes fluctuations in financial markets. This time, tourism problems are global, and tourists have little alternative to travel (UNWTO, 2020).

Based on the presented goals, tasks and functions of the macro and micro level, the company management system in a crisis situation should have several features:

- flexibility and elasticity inherent in matrix control systems;
- strengthening of informal leadership, patience, confidence and motivational enthusiasm;
- seeking the most appropriate features of good governance in complex situations and their diversification;
- reducing centralism to ensure timely decision-making and response to new challenges;
- intensity of integration processes, contributing to concentration of efforts and effective use of the potential of best practices.

The management process itself is carried out by the flow of information between the management and managed subsystems. Obtaining reliable and complete information plays an important role in making a concrete decision on how to deal with a crisis. Summarizing the methodology of anti-crisis

management, a consecutive 9 step-crisis algorithm can be proposed:

1. Diagnosis of the crisis, including research and evaluation of information on the internal and external economic environment in order to identify crisis phenomena and processes.

2. Predicting the development of crisis events by diagnostic results (Zharova, 2016).

3. Market prevention aimed at improving the effectiveness of preventive measures and their cheapening.

4. Protecting the strategic interests of enterprises to ensure the protection of the national strategic interests of the state.

5. Social support for citizens of the country, including the introduction and development of new forms of social relations while maintaining the directions of social assistance recommended to them.

6. Stimulation of economic activity for successful development of the most competitive enterprises (enterprises). As a result, promising tools and directions of the company are determined, new business organization and promotion schemes are introduced, the professional level of management is improved, more innovations are applied, etc.

7. Reducing the risk of negative consequences of anti-crisis measures.

8. Coordination of efforts aimed at eliminating conflicting measures, developing standard rules, optimizing the implementation process and the relationship between anti-crisis management measures.

9. Elimination of measures that need to be abolished or clarified during the transition period from crisis to post-crisis in the national economy, that is, preventing the adoption of measures to suppress the crisis that do not correspond to the current or future economic situation in the country (Zharova, 2016).

The purpose of the above-described algorithm is to step-by-step optimize the actions to overcome the crisis at the macro level, which then reduces the probability of its occurrence and the severity of the processes taking place in it.

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## **OVERVIEW OF THREATS TO NATIONAL ECONOMY WITH APPLICATION OF THEIR CLASSIFICATION CRITERIA**

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The very category “state economic security” is essentially multicontextual (referring to the “contextual approach” by P. Unger [1]), thus, determination of its contents would depend on a selected approach. From a number of now applied within economic security studies approaches (protective, activity-based, resource-oriented, harmonization [2]), the preference is often given to the protective one, primarily because the very notion of “security” is closely related to “insecurity”, that is, to the presence of threats imposed on the objects of security. The imperative (core) notions for explaining the phenomenon of state economic security are the notions of “threat”, “protection”, and “self-protection”. Thus, economic security of a state must be maintained stemming from the applied use of these notions.

From the standpoint of the protective approach, contents of the category

“state economic security” should be formulated as follows: state economic security is the precondition for stable functioning and further development of a national economy, and its availability manifests national economy’s perceptiveness to actualization of threats with various nature and origin and according to the currently relevant needs, knowledge level and attitudes.

The higher the level of national economy’s perceptiveness to actualization of economic threats, the lower its economic security. And the other way round: low level of national economy’s perceptiveness to actualization of economic threats assumes high level of its economic security.

The level of national economy’s perceptiveness to actualization of various threats would depend upon its current and long-term economic potential and also upon the opportunities of using this potential in the most efficient way.

In order to maintain the economic security of a state as per the context of the category “state economic security” one would need to have a clear understanding about the contents of the category “threats to national economy” and also same clear understanding about the development of its category from the standpoint of the process approach. A threat of any origin is always a process, with its beginning and ending, that is, it emerges, develops and then gets actualized, as demonstrated in [3].

Lack of an exact definition of the notion “threat to national economy” leads to misguided equation between threats as such on the one hand and the consequences from their actualization on the other. This, in turn, leads to errors in determination of vectors and guidelines for all further security-providing activities on the side of a state. In such a case, both resources and time are thus spent on fighting the consequences from actualization of specific threats, while significantly less resources would have been spent on early detection of threats, determination of probability of their actualization, prevention, neutralization and averting the development of not just one threat but several threats combined. In some cases, stages in parallel development of several threats may coincide, thus leading to multiplication of threats and the emergence of a whole area of threats that potentially could ruin the whole national economy as such.

We suggest to consider threats to national economy as processes and phenomena taking place within its external and internal environments. Under a certain combination of preconditions and circumstances, these processes and phenomena may cause negative changes within the economy of a state. These changes may be of various scale and location, however, their consequences would be anyway negative (see Fig. 1).

Nowadays threats to the national economy of Ukraine are not mentioned in any of the state-level documents. The Strategy for National Security of Ukraine (approved by the Presidential Decree as of September, 14, 2020, #392/2020 [4]) only mentions that Ukraine will be introducing a national

system of sustainability which is aimed at providing a high level of society and state readiness to react to a wide range of threats. This assumes, inter alia, the assessment of risks, timely determination of threats and vulnerabilities.

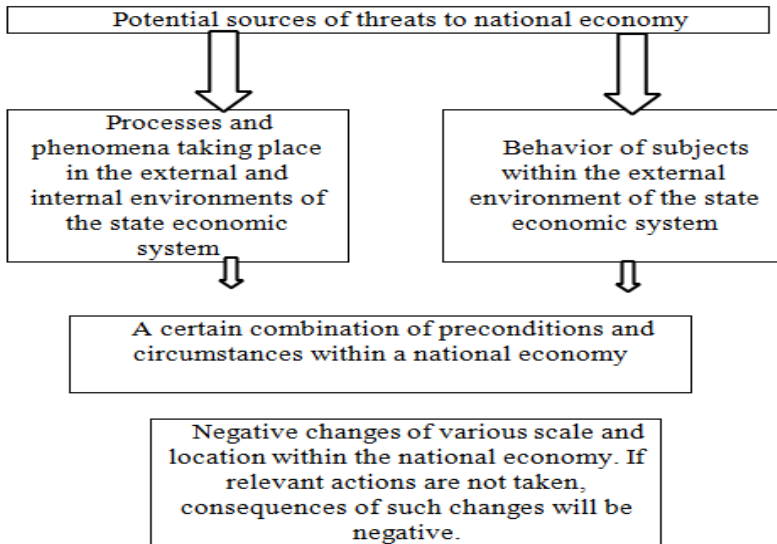


Fig. 1. Components defining the notion of “threat to national economy”

In studies on the threats to national economy an important place belongs to their classification following a range of criteria (by the object, location, source, scale of impact and consequences, degree of maturity and so on). Ranging the threats to national economy following certain criteria can be understood as the first step in the direction to better understanding of threats sources and origin and realization of all the consequences from these threats for a national economy. This, in its turn, serves as a basis for these threats prevention and elimination, or at least for hindering the development of threats through concentration of efforts aimed at overcoming the consequences from threats actualization. Criteria for classification of threats to national economy (see Table 1) allow describing various threats in terms of their scale and consequences. This, in turn, would allow determining the actions the state should take to hinder the development of threats or at least to foresee the consequences from its actualization and prepare for threat actualization. Description of threats to national economy serves as the basis for further diagnostics and monitoring of threats development, while the results from these two activities become the backbone for all further security-providing activities of the state within the economy.

Multicriteria description of threats to national economy allows for a comprehensive evaluation of their nature and scale along with studying their impact on other threats in their interdependencies and the causes of their emergence. All of the above is highly important for state-level decision-making aimed at preemptive actions taken against these threats, as opposed to fighting the consequences from these threats actualization.

**Table 1**

*Criteria for classification of threats to national economy*

<b>Criteria</b>	<b>Types of threats</b>
Presence of threat signs	obvious
	hidden
Scale of a threat	global
	nationwide / all-state
	regional
	local (or sector-specific)
Time of threat duration	permanent
	periodical
	short-term
Intensity of impact	highly dangerous
	dangerous
	minor
Consequences from threat actualization	unsurpassable/catastrophic
	partially overcomable, yet critical
	mostly overcomable
Environment of threat emergence	internal
	external
Nature of threat	natural (the threat does not depend on the actions taken by authorities)
	artificial (the threat is the direct consequence from the quality and timeliness of authorities decisions and their determination in implementation of these decisions)
Probability of situational conditions under which the threat will be actualized	potential
	real

Probability of forecasting the emergence of a threat	forecasted / expected
	somewhat forecasted
	unforecasted/unexpected (black swan event)
Frequency of threats' emergence	systemic
	periodical
	chaotic
Stages in threat development	actualized
	activated
	threats being implemented
Development dynamics	dynamic
	with weak dynamics
	slow

Examples of threats to national economy are presented in Table 2.

Thus, one of the most serious threats among those the national economy of Ukraine is facing today is the systemic nature of economic corruption in the country.

It would be a mistake to consider corruption as such to be a threat. A range of experts in this field adhere to the following opinion: economic corruption exists as long as there are state interests that need to be satisfied by public officers, and as long as these public officers have personal interests of their own at the same time. This is exactly why a real threat to the national economy of Ukraine is not economic corruption as such but rather its systemic nature of manifestations.

Systemic nature of economic corruption in Ukraine can be described as some sort of an architectonic triangle of the following features:

- institutionalization (substitution of random, periodical corrupted behavior of the selected public officers by more regular corruption acts that are following specific informal rules);
- collectivism (emergence of hierarchical and heterarchical groups among the public officers to organize and coordinate corruption acts as well as to shape the interrelations and interdependencies (both horizontal and vertical) between public officers across various departments and organizations;
- constructivism (integrating corruption schemes and networks into the skeleton of a national economy, thus assigning corruption a meaningful role in stabilization of national economy).

Thus, economic corruption in Ukraine has become actively systemic quite a long time ago, thus causing significant changes not only within the

economy but also in the society. These changes have been described in the contemporary research studies with a great deal of detail. Overcoming these changes in the near future seems to be really challenging.

**Table 2**

*Examples of descriptions for threats to national economy*

<b>Threat</b>	<b>Description</b>
Systemic nature of economic corruption	Obvious, nationwide, permanent, especially dangerous, forecasted, dynamic, real, systemic, unsurpassable, internal, artificially created threat which is actualized in full (there are obvious negative changes in the economic system of the state)
Gradual but unavoidable loss of competitive advantages	Hidden, nationwide, permanent, especially dangerous, internal, potential, activated, slow, systemic, somewhat forecasted, partially overcomable, artificially created threat
Raiding	Hidden (not obvious), periodical, dangerous, internal, real, activated, dynamic, forecasted, partially overcomable, artificially created threat that emerges in certain types of economic activity

Hidden threats are much more dangerous since they, as opposed to obvious threats, are actualized, activated and implemented in a rather implicit, not obvious way. These threats are often invisible, thus, they tend to get gradually accumulated inside the state economic system, slowly reaching the threshold after which they become unsurpassable. For example, gradual but unsurpassable loss of competitive advantages belong to such hidden threats to the national economy of Ukraine.

After the Soviet split, Ukraine failed to manage wisely the competitive advantages it had left at its disposal. At the same time, nowadays Ukraine still has some potential drivers which could boost its economic growth, namely, IT production, other intellectual services, design, innovations, R&D. However, in most cases these, still available, competitive advantages are not being reproduced for a range of reasons. One of the key among these reasons is reputation and business climate both being severely damaged by the systemic economic corruption. The case of IKEA is a striking example of how an implemented threat leads to the loss of a competitive advantage, namely, loss of attractiveness for foreign investors.

Being present in 43 countries across the world, the Inter IKEA Group has made multiple attempts to open a trading venue in Ukraine. Back in 2005 it initially planned to have nine shops in Ukraine — in Kyiv, Odessa, Dnipro, Kharkiv and Lviv, with the total number of 8 ths employees. According to different sources, the initially planned investments of IKEA were ranging between \$1 bln and \$1.7 billion. Besides, IKEA never enters a new country

alone, it comes along with around 50 other companies. But for the assigned land plots IKEA was expected to provide a colossal bribe in the amount of several dozen millions USD.

IKEA is known globally for its transparency and active fight against corruption. Thus, the company refused to enter Ukrainian market. The former general director of IKEA Russia Lennart Dahlgren then announced that the Group did not have funds for such a payola and also asked why land in Kyiv suddenly costs three times more than in Moscow or London [5].

As a result from such manifestations of corruption, the first IKEA shop in Ukraine was opened on the rented premises in Blockbuster Mall and as an “urban store” only. This happened as late as February 2021.

Due to such losses of competitive advantages Ukraine may soon find itself “stuck” (for a long term, if not forever) at the stage of raw materials production and industrial development (which is the current stage of Ukraine’s development, actually). Even the great economic potential of the agricultural sector, provided it is used wisely, would be able to raise the population welfare level by 10-20% at best.

Another source of the threat of losing the competitive advantages in Ukraine is the presence of both formal and informal limitations. Problems with the rule of law are yet to be solved. Decision-making at the public level lacks reasoning and systematicity. Moreover, decisions made are oriented solely on the interests of the state authorities while business interests are completely ignored.

Raiding as a sociopolitical phenomenon is one of the key threats to economic security of Ukraine these days. The scale of raiding in Ukraine has been enormous for quite a while by now.

The legal framework that is supposed to prevent illegal and quasi-legal takeovers of enterprises in Ukraine is actually gradually improving. However, its current state can’t be called satisfactory for now. For example, till now the very notions of “raiding” and “raider” do not have their legal definitions, and this fact complicates the process of determining those responsible for property violations. There have been several regulatory acts under discussion, however, none of them has been fully approved. Thus, there are gaps in Ukrainian legislation, and there are also contradictions between the provisions of some laws. Moreover, provisions of one law/regulatory act at times contradict those of the other.

To some extent, imperfection of the legal framework of fighting against raiding Ukraine has been caused by the insufficient understanding of the very phenomenon of raiding. This lack of understanding also causes the related methodological problems and the pendency of endemic corruption in the country. Search for the ways to solve these problems and further active use of these new ways would eventually improve the quality of the legal

framework needed for fighting raiding in Ukraine.

Fragmentary nature of the legal framework for the fight against raiding in Ukraine has been caused by the inconformity and contradictions in the selected legal and regulatory documents as well as by the dispersed responsibility for enterprise takeover according to various legal and normative acts. Such serious gaps in legislation has caused a situation when raiding acts are gradually becoming quasi-legal, and this, obviously, complicates the fight against raiding in Ukraine.

Therefore, provision of state economic security is always based on thorough studying of threats to a national economy. This studying of threats to a national economy includes their general description based on specific criteria of threats classification. The description, in its turn, allows organizing permanent monitoring over the threats to national economy along with their prevention or at least postponement in threats actualization.

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**INTERNATIONALIZATION AND BUSINESS PROCESS  
REENGINEERING OF MANUFACTURING COMPANIES AS A  
PRECONDITION OF ENERGY EFFICIENCY OF PRODUCTION  
AND INCREASING OF ENERGY SECURITY**

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In the conditions of the European integration vector for the development of post-soviet countries, which Ukraine and Lithuania need to include, the importance of implementing the concept of change management in the work of industrial enterprises, which is aimed at increasing the energy efficiency of production, is becoming more and more acute. A prerequisite for this phenomenon is a lot of factors, which for a long time had a negative impact on the work of industrial companies of different sectors of Ukraine and Lithuania. These factors include:

- high level of physical wear of production equipment;
- long time orientation of industrial products to the eastern markets, primarily the market of the Russian Federation;
- outdated technological processes and design and technological documentation of production products, which has not changed since the Soviet Union and was in line with the outdated requirements of customers of industrial products;
- the absence of a scientific component in the production of industrial products, resulting in a decrease in the level of competitiveness of products both on the domestic and on external (international) markets;
- significant loss of market segments as a result of political actions, economic wars from Russia in relation to the Ukrainian and Lithuanian economic systems;
- low level of good citizens of the countries, as a result of the increase of the level of internationalization of labor resources, as a result of an increase in the level of labor migration into the countries of the European Union;
- raising the level of external borrowing (eurocredit) countries to fill their own budgets and not always effectively use them, as a consequence of the growth of external debt and the reduction of liquidity of economic systems of countries;

- high energy intensity of production of industrial products, due to outdated technological processes for production equipment, resulting in an increase in the cost price and the final price of finished products and low level of competitiveness of products [1].

All these factors necessitate the internationalization and reengineering of business processes of industrial companies in order to increase the level of energy efficiency of production. In our opinion, there is an urgent need to reengineering the business processes of industrial enterprises, which consists in radical redevelopment of processes in the manufacturing sector, which is: implementation of reinvention of fixed assets; updating of production technologies of finished products; application of energy benchmarking, which is aimed at reducing the level of energy costs of production, energy intensity of finished products on the basis of successful practices of enterprises of Ukraine and Lithuania; the introduction of start-ups in the activities of the industrial enterprises of the two countries and the experience of the EU countries that contain measures of energy-efficient nature (for example, the introduction of renewable energy technologies based on the energy of the sun, wind, geothermal sources, land, on the production, resulting in lower production costs the final product); Implementation of best practices in the reengineering of business processes of Lithuanian enterprises aimed at increasing the level of energy efficiency of production, in the work of Ukrainian industrial enterprises, as well as the mechanism of feedback, when the experience of Ukrainian enterprises that implemented reengineering of business processes is implemented in work Lithuanian companies. All this causes the actualization of the subject of this research [1]. Many scholars are involved in scientific research dealing with the transformation of business processes in the enterprises' activity. Thus, the role of institutional transformations in the activities of financial organizations is considered in the work of such scientists as D'Espallier B., Goedecke J., Hudon M., Mersland R. [2]. During the assessment of the radical transformations of business processes, attention should be paid to the partaking of the state institutions. The scholar Abu-Shanab A. considered the practical aspects of state regulation of the manufacturing companies reengineering [3]. The mechanisms of business processes transformation at the manufacturing companies in the energy sector and the methods for their assessment were proposed by Sotnyk I., who also explored the challenges of energy enterprises' functioning and the ways of their solution [4]. The study of technological transformations and their impact on the work of companies in the countries is also significant. These aspects are attended in the research of the scientists: Dev N., Neetu A. [5]; Lorentz A., Ciarli T., Savona M., Valente M. [6].

Another important aspect in shaping the concept of technological change

is the formation of an effective management of innovations in the course of radical transformations. Scientists Oliinyk V., Kozmenko O., Weibe I., Kozmenko S., carried out research of processes of innovation management at the level of production in the work of the enterprise [7].

Scientists Kharlamova H., Stavvysky A., Zarotiadis G. carried out the discussion of the impact of technological changes on the imbalance of EU companies' revenues [8]. Gassot Y. investigated the management of financial transformations in the implementation of e-business innovations in the work of country companies [9].

An important role in improving the efficiency of economic activities of industrial enterprises is an introduction of the re-engineering of business processes as an element of the ongoing transformational changes in the business processes at the enterprise. Hrabal M. carried out the research of managerial accounting of the process-oriented activity, which improved the process of estimating the effectiveness of the reengineering measures in the business structures' activity [10]. Scientists Shevchenko T., Danko Y., Krasnorutsky O. studied the transformational changes in the natural management, namely the waste management in the activity of economic agents of the EU countries [11].

Based on the analyzed work of economists, it should be noted that among the main shortcomings in the study of internationalization and reengineering of business processes of enterprises should be underestimated the study of energy efficiency of production in the system of business processes reengineering of companies in the conditions of internationalization at the project level, because this parameter can significantly affect the overall performance of industrial companies and the formation of competitive prices of industrial products in the domestic and foreign markets.

Given the relevance of the implementation of internationalization and reengineering of business processes of industrial companies as part of improving energy efficiency, it is necessary to note the following blocks of research, which can be stolen as the basis of a joint Ukrainian-Lithuanian project.

Block 1. Research of the theoretical and methodological basis of internationalization and reengineering of business processes of industrial enterprises in the context of increasing the level of energy efficiency of production. Block 2. Improvement of organizational and economic provision of internationalization and reengineering of business processes of industrial companies aimed at increasing the level of energy efficiency of production. Block 3. Methodological support of internationalization and reengineering of business processes of industrial enterprises in the context of increasing the level of energy efficiency of production. Block 4. Concept of a forward-looking growth in the management of transformations (reengineering)

of business processes of industrial enterprises in the conditions of internationalization. Block 5. Institutional support for internationalization and reengineering of business processes of industrial enterprises as a component of increasing the level of energy efficiency of production. Block 6. Scientific and applied principles of internationalization and reengineering of business processes of industrial enterprises as a component of increasing the level of energy efficiency of production [12].

The expected results of the implementation of the joint Ukrainian-Lithuanian project should include the following:

- comparative statistical analysis of the work of industrial enterprises of Lithuania and Ukraine, taking into account the research of energy dependence of production of both countries;
- formation of prerequisites for the introduction of internationalization and reengineering of business processes of manufacturing companies in Ukraine and Lithuania, including the introduction of energy efficient technologies in industry, which makes it possible to understand the necessity of reengineering business processes of industrial companies in the conditions of internationalization;
- improvement of the theoretical positions of internationalization and reengineering of business processes of industrial companies, which is to improve the conceptual apparatus and classification marks of internationalization and reengineering of business processes of production activity in the field of energy saving, which enables to systematize the theoretical basis of internationalization and management of changes in the work of manufacturing enterprises;
- improvement of the organizational and economic mechanism of internationalization and reengineering of business processes of manufacturing companies, which enables to determine effective mechanisms of transformation of business processes of enterprises in the field of energy efficiency of production;
- formation of mechanisms of private partnership between countries on implementation of projects of internationalization and reengineering of business processes of manufacturing companies, their intergovernmental partnership in the field of energy efficiency of production, which promotes the establishment of effective relations between Lithuania and Ukraine in the industrial sphere;
- improvement of the risk management system for the introduction of energy efficient technologies in the work of Lithuanian and Ukrainian industrial enterprises, which promotes the formation of effective risk management methods in the course of reengineering business processes of industrial companies in the conditions of internationalization of production;
- improvement of the system of methods for assessing the effectiveness

of internationalization and reengineering of business processes of industrial enterprises, which makes it possible to carry out a qualitative assessment of the effectiveness of changes in the work of Ukrainian and Lithuanian enterprises;

- improvement of the process of reengineering the business processes of industrial companies, based on the concept of cutting-edge growth and benchmarking (transfer of experience of Lithuanian enterprises to the work of Ukrainian industrial companies), which enables to introduce benchmarking technologies in practice and increase efficiency in the energy and other spheres of the enterprises;

- improvement of the criterial basis of the necessity and effectiveness of realization of reengineering of business processes of industrial enterprises taking into account the experience of work in Ukraine and Lithuania, which enables to make a qualitative management decision on conducting reengineering of business processes of industrial companies;

- formation of conceptual foundations of internationalization and reengineering of business processes under the innovative development of industrial enterprises, which includes the experience of leading innovation companies in Lithuania and Ukraine and the introduction of this experience in the work of other manufacturing enterprises of both countries on the basis of benchmarking;

- improvement of approaches (cost, profitable, market) to energy efficiency of Lithuanian and Ukrainian enterprises, which enables to determine the direction of valuation of business in the course of reengineering, reengineering of business processes of enterprises in internationalization in the energy-efficient sphere;

- formation of effective organizational and economic support of the interstate partnership between Ukraine and Lithuania in the field of management of changes in business processes in the work of industrial enterprises, resulting in an increase in the level of energy efficient production of both countries;

- development of investment attractiveness of industrial enterprises of Ukraine and Lithuania on the basis of development of interstate cooperation programs in the industrial sphere (aerospace, aerospace, engineering), which will allow to raise the level of investment attractiveness of industrial enterprises of both countries for potential and real investors;

- applied testing of the proposed theoretical and methodological support for the internationalization and reengineering of business processes of industrial companies as a component of raising the level of energy-efficient production.

Also, to justify the project, it is worthwhile pointing out the types of effects that will be gained. Economic effect. The formation of the methodological

basis for internationalization and reengineering of business processes of industrial companies, which is aimed at reducing the cost of production of final products, as a result of the introduction of energy saving technologies, as well as reduction of production costs can be achieved as a result of the introduction of a horizontal (process-oriented) management structure, as a result of reduced administrative and overhead costs of production. The social effect is the creation of new jobs during the implementation of the Ukrainian-Lithuanian project on the one hand, and the optimization of labor resources, which consists of internal and external rotation of personnel at enterprises in implementing internationalization and reengineering of business processes. The ecological effect is to reduce environmental damage in the reengineering of business processes of industrial companies as a result of an increase in the level of compliance with the emission standards of enterprises emission standards, which are regulated in the European Union.

In conclusion the results of this research will contribute to further progress in the implementation of the Association Agreement between Ukraine and the EU and in addressing energy consumption in industry [13].

After the project implementation, it is planned to continue providing methodological support both in Lithuania and in Ukraine related to the dissemination of best practices.

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## **SUSTAINABLE DEVELOPMENT THROUGH GEO-TOURISM**

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In 1984, the United Nations entrusted the work of identifying long-term environmental strategies for the international community by identifying a group of 22 people drawn from member states of both the developing and

developed worlds. In 1987, the World Conference on Environment and Development (WCED) published a report entitled, ‘Our Common Future’ [1], often known as the ‘Brundtland Report’, after its chair, the then Prime Minister of Norway, Gro Harlem Brundtland. The term ‘Sustainable Development’ was used in the Brundtland report as “the development that meets the needs of the present without compromising the ability of the future generations to meet their own needs” [2]. In the 1992 United Nations Conference on Environment & Development (UNCED) on ‘Earth Summit’ in Rio de Janeiro, several environmental issues were raised by the government representatives, NGOs and accredited journalists. The aim of the UNCED conference was to identify an agenda towards sustainable development in the future. Thus sustainable development became a challenge to both policy makers and researchers [3]. The 2002 World Summit on Sustainable Development (WSSD) was held in Johannesburg and was attended by 104 nation states. The challenge of sustainability was connected to environmental, economic and social development [4].

According to the United Nations, the 17 Sustainable Development Goals can be achieved through 5Ps – People, Planet, Prosperity, Peace and Partnership [5].

Geo-tourism is defined as “a tourism that sustains and enhances the identity of a territory, taking into consideration its geology, environment, culture, aesthetics, heritage and the well-beings of its residents” [6]. “Geo-tourism is a knowledge -based tourism, an interdisciplinary integration of the tourism industry with conservation and interpretation of abiotic nature attributes, besides considering related cultural issues, within the geosites for the general public” [7].

Geo-tourism is also defined as “A form of natural area tourism that specifically focuses on landscape and geology. It promotes tourism to geosites and the conservation of geo-diversity and an understanding of Earth sciences through appreciation and learning. This is achieved through independent visits to geological features, use of geo-trails and view points, guided tours, geo-activities and patronage of geosite visitor centers” [8]. Geo-tourism becomes strategic when geo-tourism is ingrained in the mission of the organization. Geo-tourism is a product of environmental responsibility, cultural responsibility and intangible heritage. The benefits of geo-tourism are economic development, social development of the local population, experiencing and sharing the excitement about the heritage and culture.

The essential requirements for building a successful geopark are:

- inventories of geological heritage, natural heritage, cultural heritage and intangible heritage;
- uniqueness of the heritage sites or objects or artefacts and tradition of

the village;

- developmental strategy such as economic development and geo-tourism;
- accessibility to travel by road, sea or air to the geopark sites and locations;
- heritage location and pre-existing limits;
- formal management structure;
- permanent team working for geopark;
- connections between the heritage sites, nature, history and human with story;
- integrating local society and stakeholders with the cultural sites, geological sites and historical sites;
- financial plan and forecast;
- site management;
- brand strategy and master plan [9].

A geopark visitor, also called a geo-tourist, is the next person in the geopark supply chain who uses the services of geopark for a fee. In return, the geo-tourist carries a lasting memory together with knowledge about the earth and its heritage, a sense of satisfaction or excitement. A visitor contributes to the value of geopark through payment of a service fee which is used for the development of geopark. It is, therefore, necessary to track geo-tourists and follow up with them in order to understand their needs and identify the purpose for using the geopark facility and services. Planning and implementing strategies to increase footfall (visits) of geo-tourists, maintain and repeat visits are an important area of geopark operations. The strategies create value for a geopark. Like customers for a business organization, geo-tourists are the pillars on which a geopark stands. The geo-tourists may be classified into several categories depending on the frequency of visits and duration of stay at a geopark. There are five categories of geo-tourists based on frequency and regularity of visits. The first category are predominant visitors- the geo-tourists who visit a particular geopark on a regular basis and are brand or service loyal to a particular geopark. These visitors cherish the value offered by the geopark. The geopark management has to adopt innovative strategies to retain these predominant visitors (geo-tourists) to continue their visits on a regular basis with repeated intervals, thus help in geopark revenue generation. These visitors should be motivated, treated as special and continue with specific programmes of interest targeted at them.

The second category of geo-tourists are mixed visitors, those geo-tourists who are not particularly brand loyal to any particular geopark, but visits all geoparks equally. The geopark management identifies these geo-tourists and formulates special promotional campaigns that are of interest to them in order to increase their frequency of visits.

The third category of geo-tourists are casual visitors, those infrequent visitors to a geopark and these visitors have no specific purpose for visiting a geopark, their visits are casual and are called casual geo-tourists or casual visitors.

The fourth category of geo-tourists is non-visitors, as the classification suggests, these visitors could be first time visitors or they have not visited a geopark because they may not be aware of its existence or services. The geopark management has to focus on creating awareness among these non-visitors so that their first visit becomes interesting and fruitful. The geopark management is responsible for creating interest among these classes of geo-tourists through promotional strategies.

The fifth category of geo-tourists is lost-visitors, those who were visitors earlier but lost to another geopark or stopped visiting a particular geopark due to some reason or the other. The reason for stopping the visit could be dissatisfaction with a product or process or a service. It is the responsibility of the geopark management to identify the reasons for stopping the visit and analyze the cause of dissatisfaction among these lost visitors. The geo-tourists may also be categorized according to the size or infrastructure. These could be individual geo-tourists, group geo-tourists (small and large) and institutional geo-tourists. The geo-tourists may also be categorized based on the location of domicile or region, such as: local visitors, regional visitors, national visitors and foreign visitors.

The geo-tourist categorization is represented in table 1 below.

**Table 1**

*Categorization of geo-tourists*

<b>Feature</b>	<b>Categories of geo-tourists</b>
Frequency and regularity of visits	Predominant visitors
	Mixed visitors
	Partial Visitors
	Non-visitors
	Lost visitors
Size or infrastructure	Individual geotourists
	Group geotourists
	Institutional geotourists
Location of domicile or region	Local visitors
	Regional visitors
	National visitors
	Foreign visitors

*Source: based on [10]*

However, it is suggested that in order to develop long term relationship with the geo-tourists, a geopark must develop a “Geo-tourist Target Plan” report. This report helps understand the types of geo-tourists visiting the geopark.

The researchers also suggest that a geopark must initiate a separate “Target List”, also called “Geo-tourist Master List” aimed at various categories of geo-tourists: individuals and groups of geo-tourists, geo-tourist agents and institutional geo-tourists, for targeting. Thus, three different types of “Geo-tourist Master Lists” may be generated with code numbers assigned to each of the geo-tourists and geo-tourist agents mentioned herein. These codes could be linked to Customer Relationship Management software. This method could be useful and effective in planning promotional inputs and programmes for geo-tourists. These code numbers are further be integrated to RFID chip and connected to geo-tourist for efficient tracking and promotions.

Geo-tourist engagement strategies are strategies developed to attract and retain geo-tourists/geopark visitors, and to offer them a sense of feeling, well-being, belonging and value. Geopark strategy could be planned both at the strategic and operational levels. In preparing a geo-tourist engagement strategy, there are two key elements involved. One element is the identifying the position of a geopark, its product or service in the mind space of a geo-tourist; and the other element is the operational effort to transform a lost geotourist (geopark visitor) or non-visitor along the path of casual (partial) visitor-mixed visitor to predominant visitor. The researchers term this effort as the transformational effort.

The Geo-tourist Engagement Model may be explained as follows:

The researcher ranks the geopark visitors on a 5-point scale, also called “Scale of Engagement” as follows:

Predominant visitor +5, Mixed visitor +3, Casual visitor +1, Non-visitor 0 and Lost visitor -1.

The geopark organization may form two groups of task forces- strategic task force focused largely towards the “predominant visitor” side and an operational task force focused largely towards the “lost visitor” side on the “Scale of Engagement”.

A “Predominant visitor” will always have a higher chance of “geopark brand recall” and a “positive feeling” compared to that of a “Lost visitor”. Therefore, the strategic task force will have a higher degree of “Strategic Engagement” towards the “Predominant visitor” side with decreasing strategic engagement towards the “Lost visitor” side of the scale. In similar way, the operational task force will have a higher degree of “Operational Engagement” towards the “Lost visitor” side of the scale. This generates

a high transformational effort at the “Lost visitor” side of the scale and decreasing operational engagement towards the “Predominant visitor” side of the scale. The research suggests that the above “Geo-tourist Engagement Model” helps a geopark manager in optimizing resources at the geo-tourists.

A method of improving geopark visitor footfall is to collaborate with geo-tourist agents and tour operators in bringing geo-tourists to the location. A detailed strategy and a commission to the geo-tour operators in bringing geo-tourists to the geopark locations are to be planned. There is a need to train these agents /supply chain partners in enhancing geo-tourism capabilities.

Geo-tourist Management Document is a document that provides information about classification of geo-tourists, their potential and revenue generated in value. The ranking is undertaken in a descending order. ABC Analysis or Pareto’s law is because focusing on a minority segment (a core group) contributes a significant value generator. Identifying the minority group of geo-tourists who contribute to the majority of geopark revenue enables a geopark to manage its resources efficiently.

Geo-tourist agent document provides information about classification of geotourist agents / partners of the geopark supply chain, their potential, yield (revenue generated) and ranking based on revenue contributed to geopark. This is undertaken using ranking method with ABC analysis.

Geoparks are instruments in promoting sustainable geo-tourism with focus on people, planet, prosperity, peace and partnership. Geo-tourists are key stakeholders that promote development of geoparks. Efficient and effective management of geo-tourists with focus on value chain network contributes to value creation.

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## **ENVIRONMENTAL SECURITY - A KEY TO SUSTAINABLE ECONOMIC AND ENVIRONMENTAL DEVELOPMENT OF UKRAINE**

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One of the major contemporary issues is the preservation of habitat quality under the conditions of high anthropogenic impact on ecological systems. The quality of land depends on the quality of agricultural products

that directly affect human condition and health. Therefore, issues of land use greening and food security in Ukraine are closely connected and need further research and improvement.

The maximum possible satisfaction of consumer needs makes producers look for new technologies in the production and sale of products. However, recently there have been some contradictions as the natural capacities and resource potential of the planet are limited and cannot always be self-restoring. Soil degradation, desertification, ozone depletion, unpredictable climate change, and natural disasters are convincing evidence of the imbalance in the natural system.

Ecological safety is the environmental condition, which secures the prevention of deterioration of the ecological situation and the occurrence of hazard to human health, i.e. ensuring the ecological balance on Earth by implementing a set of appropriate measures.

According to the famous researcher in the field of ecology V. F. Reimers, environmental safety should be based on certain principles [1]. They are as follows: 1) awareness that humanity, as an integral part of nature, is entirely dependent on the environment; 2) recognition of the limitation and exhaustibility of the natural resource (ecological) potential of the land and individual regions, the need for its qualitative and quantitative inventory; 3) the unacceptability of artificial expansion of natural resource (ecological) potential beyond natural systemic constraints; 4) assessment of the admissible maximum of extraction of natural resources and change of ecosystems as a habitat; 5) the need to develop preventive environmental bans in advance of the economic depletion of natural resources or their indirect destruction; 6) the obligation to create a social and economic mechanism of homeostasis in the system of “man – nature”; 7) urgent and mandatory need to regulate the number of people, reduce their pressure on the environment at the local, regional and global levels; 8) acceptability of merely “environmentally friendly” technologies and equipment in all sectors of the economy; 9) the transition to resource-economic technologies and miniaturization of products to the business practices safe for nature and people; 10) recognition of the law of optimality and in management – the principle of reasonable sufficiency in the use of methods of obtaining life benefits in spatial and temporal specific limits (restrictions on environmental, social, and economic risk factors); 11) understanding that without an adequate living environment (ecosystem integrity) it is impossible to preserve and develop living things, including its species (humans, in particular) and natural systems of a lower level of hierarchy.

It is worth noting that in Ukraine there are many non-governmental organizations on environmental protection. Thus, the first NGO, which was established in 1946, is the Ukrainian Society for Nature Protection

(UkrSNP). Until the mid-1960s, UkrSNP was the only voice of the environment in the decision-making projects of public administration; concurrently, UkrSNP sought to introduce a comprehensive environmental and economic approach to economic management and to form the Ministry of Ecology in the structure of the USSR Government. Moreover, in 1967, due to this organization, the Government of the Ukrainian SSR created the State Environmental Committee, as a central authority. This happened three years before the establishment of the US Environmental Protection Agency and 21 years before the establishment of similar government agencies in Moscow. Today the main goals of the Ukrainian Society for Nature Protection are [2] 1) to promote the formation of civil eco-society, the rule of environmental law; to initiate, organize and participate in the implementation of practical environmental actions and measures, promoting the greening of all spheres of life in the context of Ukraine's national security; 2) to provide civil support of Ukraine's environmental policy, assistance in improving the legislative and regulatory framework, to accelerate the process of harmonization of Ukraine's environmental legislation with the requirements of international standards, in particular, with the EU standards; 3) to implement educational activities among the population to promote public environmental awareness, to introduce a system of professional environmental training of civil servants, managers and officials who make responsible decisions at the local, regional, and state levels; 4) to provide public control over the observance of constitutional and legal guarantees of environmental rights of Ukrainian citizens, to assist in preventing ecological offenses, to implement independent civil control, ecological expertise, and audit in the field of environmental protection; 5) to conduct scientific research and promote Ukraine's transition to the principles of sustainable development.

Besides, the All-Ukrainian Ecological League has been operating for 18 years in a row. Its activities are aimed at forming a developed civil society as a major factor in balanced development and a feature of a democratic state. This organization is initiating the creation of the National Platform of "Sustainable Development Goals for Ukraine" to unite the efforts of government officials, local authorities, businesses, scientists, and the public to ensure economic development and social protection taking into account the opportunities and the needs of the natural environment.

In our opinion, the food security of our country depends on the following factors: the level of the agricultural sector development and the production of organic products; environmental protection; rational use of natural resources; ensuring the environmental security of human life and activity; food industry development; the level of export-import operations; the level of purchasing power and culture of the population; opportunities to use

innovative technologies; financial capabilities of enterprises; logistics and investment attractiveness of agricultural enterprises; state support, granting benefits to agribusiness enterprises, and efficient fiscal policy.

One of the main components of food security is economic and physical affordability. The affordability of food is implemented through the purchasing capacity, taking into account the purchasing power, price, and availability in the appropriate quantity and quality.

The indicator of the consumption of basic food products per capita is largely integral. It characterizes at the same time different aspects of food security together: food availability in the domestic market, as well as its economic and physical affordability (Table 1).

**Table 1**  
*Dynamics of annual food consumption per capita, kg / year*

<b>Indicators</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2019 in % to 2017</b>
Meat and meat products	51,7	52,8	53,8	104,1
Milk and dairy products	200,0	197,7	201,7	100,9
Eggs, pcs	273	275	279	102,2
Fish and fish products	10,8	11,8	12,5	115,7
Sugar	30,4	29,8	28,5	93,7
Vegetable oil	11,7	11,9	11,2	95,7
Potatoes	143,4	139,4	135,6	94,5
Vegetables and melons food crops	159,7	163,9	167,5	104,8
Fruits, berries, and grapes	52,8	57,8	59,2	112,1
Bread products	100,8	99,5	97,2	96,4

*Source: Compiled by the authors according to [3]*

Consumption trends of basic food products per capita in 2017-2019 are as follows: consumption of meat and meat products increased by 4.1%; milk and dairy products by 0.8%; eggs by 2.2 %; fish by 15.7%; vegetables by 4.8%; fruits, berries, and grapes by 12.1%. Consumption of vegetable oil decreased by 4.3%; potatoes by 5.5%; bread products by 3.6%.

Recent research has indicated that there are many low-quality goods in the consumer market. The main reasons for the poor quality of food sold to the population are weak material and technical base and insufficient equipment of many enterprises of the food industry and trade; low level of sanitary and industrial culture; use of low-quality raw materials and components; a sharp decrease in production and industry control due to the dissolution of

economic management bodies in the laboratory service, as well as the desire of manufacturers to reduce the cost of product quality control. Preventive actions to combat substandard products should be applied at the state level, as food and food safety are among the main factors determining the health of the population of Ukraine and the preservation of its gene pool. Such factors include the introduction of modern operational methods of control, NAACP system (Food Safety Management Quality System) at all enterprises; creation of bodies of independent examination to allow the identification of goods whenever the buyer of the goods doubt about its range and quality; strengthening the sanction for food counterfeiting (introduce fines that would exceed the cost of a batch of counterfeit products at least twice); decertification of counterfeiters in case of repeated abuses.

According to the European Regional Office of the World Health Organization, the current state of health of the Ukrainian population is characterized by extremely high morbidity and mortality, low life expectancy. Failure to ensure rational consumption of basic foodstuffs and their unbalanced content of micro and macro elements is the main cause of human mortality. According to the Population Division of the United Nations Department of Economic and Social Affairs, the average life expectancy in the world has increased from 65 years in 1990-1995 to 70 years in 2010-2019 (Table 2).

**Table 2**

*Average life expectancy in some countries, years*

Country	The average life expectancy of the population	Including	
		women	men
Ukraine	68,6	74,8	62,8
Russia	66,3	73,2	59,8
China	74,7	76,9	72,7
the USA	78,4	80,9	75,9
India	66,8	68	65,8
Japan	82,3	85,7	79

Data in Table 2 show that the highest life expectancy is in Japan – 82.3 years, and the lowest is in Russia and India – 66.3 and 66.8 years, respectively. In Ukraine, this figure is 68.6 years, which is lower than the average, which reaches almost 71 years. In all countries without exception, the life expectancy of men is lower than that of women.

The current population in Ukraine, as of December 1, 2020, was 41,629.9 thousand people. Compared to January-November 2019, the volume of

natural decrease increased by 33.3 thousand people. A significant excess of the number of deaths over live births characterized natural population movement in January-November 2020: 49 live births per 100 deaths [3].

Income is an indicator of the economic affordability of food. In January-December 2020, the size of the average monthly nominal salary of full-time employees of enterprises, institutions, and organizations (with 10 or more employees) was up to UAH 11,591 and compared to the corresponding period of 2019, increased by 10.4%. The average salary in all regions was higher than the minimum; however, only in four of them, it exceeded the average level in Ukraine: Kyiv – 17,086 UAH, Donetsk region – 12,647 UAH, Kyiv region – 11,887 UAH, Dnipropetrovsk region – 11,681 UAH. The lowest level of nominal wages, which did not exceed 81% of the average in the economy, was observed in Chernivtsi, Volyn, Chernihiv, Kherson, and Ternopil regions. The index of real wages in January-December 2020 compared to the corresponding period of 2019 was 107.4% [3].

Recently, due to rising food prices, the population has become more prudent in shopping. The consumer price index (inflation index) in 2020 was 105.0% (in 2019 – 104.1%) as a whole. Food and non-alcoholic beverages went up by 4.9%. Prices for sugar, eggs, grain products, and sunflower oil increased the most (by 47.7-21.7%). Fruit, bread, beef, pasta, rice, milk and dairy products, fish and fish products, butter, and soft drinks were 12.9-2.0% more expensive. At the same time, vegetable prices decreased by 12.1%. Poultry meat fell in price by 4.8% and pork by 1.7%. According to statistics, the main item of household consumption expenditure in 2020 is food, which share was 51.6% with a 60 percent threshold. For comparison, food expenditures in EU households do not exceed 12% of total consumer expenditures, and the main expenditure item is housing and energy expenditures accounting for almost a quarter of such expenditures.

As already mentioned, land resources are a key factor in ensuring food security. Ukraine has unique opportunities: of the 60 million hectares of the state territory, more than 70% are agricultural lands. Therefore, in our country, it is necessary to create all conditions for the land potential to be used more efficiently to ensure the food security of the state. In terms of the black soil area (28 million hectares), our country ranks fourth in the world after Russia, the United States, and China. The world now needs an increase in food, and Ukraine can provide the biggest growth. According to various estimates, we have the potential to feed more than 600 million people. Thus, according to the World Bank, in Ukraine, the level of labor productivity in the economy is 5 times lower than in EU countries. Comparing the average value added per worker in agriculture in the EU and Ukraine, it found that in Ukraine, it is 6 times less; we are 20 times behind France. This has a significant impact on the food security index [4]. In the Global Food

Security Index (GFSI), Ukraine ranks 76th out of 113 countries. The index is a dynamic quantitative and qualitative model of benchmarking, built on 34 unique indicators that measure the driving forces of food security in developing, as well as in developed countries.

Support for the appropriate level of food self-sufficiency, which is the stable provision of food security in Ukraine, involves the use of state support for domestic agricultural producers and the implementation of measures to control imported products to protect domestic producers from foreign competition. According to P. Sabluk and Yu. Luzan, “non-compliance with the requirements of the legislation on the state support of agricultural producers through direct expenditures from the state budget and significant reduction of their volumes under certain programs, contribute to the development of subsectors of the agricultural sector, which led to a deterioration in the structure of food production” [5].

In 2020, according to the State Statistics Service of Ukraine, the volume of agricultural products at actual prices, according to estimates, amounted to 885,627 million UAH. The crop production index compared to 2019 is 86.1%, including at enterprises – 83.5%, households – 92.2%. In the livestock industry, the index of production in 2020 compared to 2019 – 97.4%, including at enterprises – 99.1%, households – 95.5% [3]. Under such conditions, regarding the production of agricultural products and the provision of food for the population of Ukraine, it is necessary to consider the constant growth of the share of agricultural products in the structure of exports. In particular, according to the Ministry of Economic Development, Trade, and Agriculture of Ukraine, in 2019, the share of agricultural products in the structure of exports was 44.2%. In January 2020, agricultural products worth \$ 1.98 billion were exported to foreign markets, which is 14% more than in the same period of 2019 [6].

Issues of environmental development are still relevant for all countries around the world, and Ukraine is no exception. Our country is affected by the ecological crisis, which is caused primarily by excessive atmospheric pollution, disruption of relationships in ecosystems, and irrational use of land resources.

A purely operational approach and environmentally destructive economic activity have led to the disruption, as well as to the destruction of natural landscapes. In 2017, Ukraine took first place in the ranking of plowed countries with 33.5 million hectares (56.1% of arable land from the total area of the state) of arable land. The second and third places are occupied by Moldova (53.7%) and Poland (35.7%), respectively [7]. An alarming consequence of the high degree of plowing of soils in the country is their degradation, water and wind erosion, and reduced land resource productivity.

Based on various scientific sources, we have generalized the parameters of degradation processes in arable soil of Ukraine: –dehumidification with an intensity of 0.5-1.5 t / ha annually with a sign of reducing losses until the end of the 1980s. Since 2005, the intensity of dehumidification is 0.42 - 0.51 t / ha each year; – increase in the deficit of the mobile nutrients ratio, in particular, nitrogen and potassium (respectively, 41.5-56.4 kg / ha in 2001 and 32.9-64.2 in 2018); – increase in the acidity of black soil, most noticeable in Cherkasy and Sumy regions ( $\Delta\text{pH} = 0,3 - 0,5$ ); – overconsolidation, which is foremost noticeable in the Western Forest Steppe and is generally common in 40% of arable land, destruction of the structure, the formation of boulders and crusts; – decrease in the capacity of the upper layer of soil due to the spread of erosion processes, which extends by several centimeters in black and drained soil of Polissya; – secondary salinization and salinization of irrigated soils, operation of peatlands.

Assessment of ecological stability of the territory within the regions of Ukraine by calculating the coefficient of ecological stability (C ec.st.) is given in Table 3. The score of anthropogenic load (S a. l.) characterizes the degree of human impact on the environment, including land resources.

According to the scientific methodology of the Institute of Land Management of UAAS, if the coefficient of ecological stability is less than 0.33 – the territory is environmentally unstable; from 0.34 to 0.50 – refers to the stable unsteady; from 0.51 to 0.66 – is within the limits of average stability; if it exceeds 0.67 – the territory is environmentally stable. If the anthropogenic load score is 5 points it is a high degree of anthropogenic load (industrial land, transport, settlements); 4 points – significant (arable land, perennials); 3 points – average (natural forage lands, tinned beams); 2 points – insignificant (forest belts, shrubs, forests, swamps, underwater); 1 point – low (micro natural reserves).

Thus, within the regions of the country, the coefficient of environmental stability ranges from 0.71 in the Zakarpattya region to 0.27 in the Zaporizhzhia and Kirovohrad regions.

**Table 3**

*Characteristics of the environmental condition in the regions of Ukraine as of 2019*

<b>Regions</b>	<b>C ec.st.</b>	<b>Environmental stability of the territory</b>	<b>S a. l.</b>	<b>The level of anthropogenic load</b>
Vinnitsia	0,33	unstable	4	significant
Volyn	0,57	average	3	average
Dnipropetrovsk	0,28	unstable	4	significant

Donetsk	0,29	unstable	4	significant
Zhytomyr	0,55	average	3	average
Zakarpattya	0,71	stable	3	average
Zaporizhzhya	0,27	unstable	4	significant
Ivano-Frankivsk	0,62	average	3	average
Kyiv	0,43	average	3	average
Kirovohrad	0,27	unstable	4	significant
Luhansk	0,41	unsteady	3	average
Lviv	0,53	average	3	average
Mykolayiv	0,28	unstable	4	significant
Odesa	0,31	unstable	4	significant
Poltava	0,33	unstable	4	significant
Rivne	0,60	stable	3	average
Sumy	0,42	unsteady	3	average
Ternopil	0,34	unsteady	4	significant
Kharkiv	0,34	unsteady	4	significant
Kherson	0,34	unsteady	3	average
Khmelnysky	0,35	unsteady	4	significant
Cherkasy	0,36	unsteady	3	average
Chernivtsi	0,51	average	3	average
Chernihiv	0,47	unsteady	3	average

*Source: according to data [8]*

Moreover, only one region is environmentally stable (Zakarpattya region) and 6 are within the limits of average stability (Volyn, Zhytomyr, Ivano-Frankivsk, Lviv, Rivne, Chernivtsi). All other areas of the region are stable unsteady and environmentally unstable. In general, in Ukraine, the anthropogenic load is 3 and 4 points and is characterized by an average and significant degree of load.

Soil and its condition are the main and most powerful components of the environment in terms of territory. Adverse anthropogenic evolution of soil is a legitimate concern of agricultural producers. Arable soil is in an unsteady condition.

It is well known that the supply of nutrients to the soil is ensured by the application of fertilizers. Organic fertilizers remain the most important resource for soil humus reproduction. According to the research, land resources are provided with mineral fertilizers by 48% and organic – 5%

of need. When such an insufficient amount of fertilizers is applied, there is a lack of humus and nutrients in the soils of Ukraine, i.e. the removal of nutrients must be replenished by returning them to the soil. According to the latest agrochemical survey of soil, there is almost no soil with a high humus content in Ukraine, and if in 1990 there were 36.9%, today – only 3%.

Regarding this situation, a very important conclusion should be drawn: along with changes in soil characteristics, agricultural technologies must also change. Moreover, the soil-preserving aspect of the latter should prevail over the negative results of anthropogenic soil change. The soil protection orientation should dominate in the methods of their cultivation [9, p. 16].

Thus, soil with rather unsatisfactory properties (degraded and infertile) in the land structure of our state occupies a large area. According to the Institute of Land Management, the area of such soil exceeds 6.5 million hectares, i.e. – 20%. According to other scientific institutions (“Sokolovsky Institute of Soil Science and Agrochemistry” NSC, “Institute of Agriculture” NSC), the area of soil that has undergone degradation processes and infertile soil reached about 10 million hectares. As a result, every year, losses from the use of such lands in Ukraine as a whole reach about 400 million UAH [9, p. 15]. Therefore, there is an urgent need to take effective measures to protect and restore the natural environment, soils foremost. Long disregard of these issues will lead to a situation in which reforms will prove ineffective and futile. After all, a country that does not care about its safe environment and the activities of the economic complex has no future.

The production of organic products, which strictly limits the use of artificial chemically synthesized fertilizers and pesticides, is one of the promising areas of ensuring the production of environmentally friendly products. The use of antibiotics and growth stimulants is prohibited in livestock husbandry. Among the methods of organic agriculture, a special place is given to crop rotations that restore and preserve soil fertility. Crop rotation is also a natural system of plant protection against pests. The cultivation of genetically modified crops is strictly prohibited. Certification authorities constantly ensure that animals are kept on a large territory sufficient for the free movement to meet high standards of welfare.

Today, Ukraine has a significant potential for the production of organic agricultural products, their export, and consumption in the domestic market. Some results have already been achieved in the development of domestic organic production. In recent years, with a steady positive dynamics of growth of agricultural land, which is certified organic production, there is sustainable growth in the number of operators of the organic market, as well as the level of consumption of organic products in Ukraine. Official statistical reviews of IFOAM confirm that in 2002, in Ukraine, there were 31 farms with the status of “organic”. In 2019, there were 617 operators of

the organic market, of which 470 – agricultural producers. The total area of agricultural land with organic status and the transition period amounted to about 468 thousand hectares (1.1% of the total agricultural land area of Ukraine) [10]. According to the area of agricultural land used for growing organic products, Ukraine ranks 20th in the world among more than a hundred countries, ahead of such leaders of the organic movement as Hungary, Denmark, the Netherlands, Sweden, and Switzerland.

The domestic consumer market of organic products in Ukraine continues to expand through the main supermarket chains. The main types of organic products produced in Ukraine are cereals, milk and dairy products, cereals, meat and meat products, fruits and vegetables (Table 4).

**Table 4**

*Volumes of the consumer market of organic products in Ukraine, 2004-2019*

Year	2004	2009	2012	2015	2016	2017	2018	2019
mln. Euro	0,1	1,2	7,9	17,5	21,2	29,4	33,0	36,0

Ukrainian organic products are bought by EU countries most of all. In 2019, Ukraine ranked 2-nd out of 123 countries in terms of imports of organic products to the EU, rising two places compared to the previous year. Thus, in 2019, 3.24 million tons of organic agri-food products were imported into the EU, more than 10% of which are Ukrainian. At the same time, Ukrainian imports to the EU increased by 27% – from 265.8 thousand tons in 2018 to 337.9 thousand tons in 2019 [11]. Currently, imported Ukrainian organic products are certified quite successfully by foreign entities that use a versatile evaluation system.

Environmental responsibility in the field of agricultural land use plays an important part in the food security of the country, as the problem of providing quality food is critical for the population. The estimated loss from food contamination in Ukraine is more than 6 billion dollars per year. From time to time, there are scandals in the world with newly discovered substances that are hazardous to health, and the emergence of new forms of infections questions the possibility of sustainable development of society. This situation can lead to the fact that increasing the level of consumption of agricultural products (above all – food) can reduce the quality of life in general. Furthermore, this is primarily a decrease in the health of the population, which leads to a loss of human capital [12].

Thus, affecting the environment, environmental safety also affects humans. In this context, the quality of air, water, land, as well as the quality of food, which is usually suitable for life and quality, is important.

Resolving the issue of food security and the production of environmentally

friendly and useful products requires strict control by the state in terms of the natural environment condition, as well as the production of quality food. The state must also take care of the affordability of these environmentally friendly and high-quality food products for the population, as a healthy nation is a strong country.

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# THE ECONATURAL, ECONOMIC AND MARKETING POTENTIAL OF THE ORGANIC PRODUCTION DEVELOPMENT IN THE WORLD

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The agri-food market development influences the change of its structure. New consumer demands have been emergent. In particular, product quality, environmental friendliness, safety is very important under current conditions. More and more people are interested in healthy and wholesome food. At the same time, the environmental factor plays very important role. Careful treatment of land resources and the environment is the basis of the sustainable development concept, which acquires new features under the influence of globalization factors.

Thus, the situation analysis of the world agri-food market shows the growing interest of consumers in healthy and wholesome food together with a direct contribution to the preservation of the natural environment. Under such conditions, meeting the growing demand for organic products continues to be one of the strategic directions of agricultural development in most countries. The organic agriculture role is more important right now due to humanity's understanding of the environmental threat resulting from the development of agricultural technologies and in particular the intensification of agriculture. As a result, alternative methods of agricultural production are most in-demand under globalization conditional.

These technologies must take into account the level of biological diversity, conservation of the environment and natural resources, the high standards of appropriate animal husbandry and production methods. This affects of products that are manufactured using substances and processes of natural origin.

The organic production's economic advantages are a significant reduction in production costs as a result of abandoning the use of expensive fertilizers and plant protection products, as well as reducing the energy intensity of production. The organic production social benefits are the development of

rural infrastructure, the creation of additional jobs in rural areas, and the improvement of the nation's health as a whole. Environmental benefits are the preservation and restoration of biodiversity in agricultural landscapes, which affects the reproduction of soil fertility and environmental protection.

The concept healthy lifestyle is complex and multifaceted. In general, this concept characterizes the rejection of transgenic foods, limiting the fats consumption, the predominance of environmentally friendly foods in the diet, including vegetables, fruits and berries.

In the up-to-date scientific literature there is a significant number of works that address issues of organic production [1; 2; 4; 6; 7; 9], which note the prospects of this area, especially in the context of globalization and increasing consumer demand to food.

Fesenko A.M. believes that organic production is a system of activities organization that would minimize the use of artificial, unnatural substances and technologies, allow obtaining products with the most natural properties and the production process itself does not violate the ecological balance [4, p. 243]. Melnik V.O. considers organic agriculture from the point of view of legal practice, as «the organization of production of ecologically pure agricultural production with use mainly natural, natural technologies of plants cultivation and animal's husbandry» [6, p.231]. EU Regulation 834/2007 considers organic production to be a holistic food management and production system that combines best practices in terms of environmental conservation, biodiversity, conservation of natural resources, the application of high standards of animal husbandry and production methods, which meets certain requirements for products manufactured using substances and processes of natural origin [3]. Definition by R.M. Bezus is filled with social meaning: being self-sufficient, organic farmers improve the land and build a model of food production independence from expensive external materials [1, p. 24].

In our opinion, organic production is a system of traditional technologies based on the natural properties of the resources involved without additional intervention of artificial stimulants, which ensures harmonization of economic, social and environmental relations through the production of environmentally friendly food at an affordable price for most members.

Organic products are environmentally friendly products made from the use of dumpless tillage technology, without the use of fertilizers, herbicides, pesticides, genetically modified elements and other components that change the natural female, the smell and color of the product.

The organic production has a lot of competitive advantages both for enterprises and for consumer's. Among them there are following: high quality and safety of products, which is achieved primarily due to the absence of pesticide residues, pesticides, genetically modified organisms, etc.; positive

impact on human health; safety for the environment; positive impact on the reproduction of natural resources, in particular soil fertility; preservation of nutrients; improving the quality and safety of processed products.

A significant increase in interest from producers and consumers to organic products is there in the world. Similar trends are observed in Ukraine. However, in Ukraine, there are certain inhibitory factors that hinder the rapid development of this agri-food market sector. Destructive factors are: underdeveloped consumption culture, orientation of enterprises to short-term profit, imperfect pricing policy, inefficient market segmentation, suboptimal structure of the range of organic products and industry combination.

The organic production has been development in t 77.8%, or 186 countries in the world. This sector of the market is the most popular for European countries, 48 countries in this region, or 94.1 %, develop this kind of activity (Table 1).

**Table 1**  
*Indicators of the organic production coverage in the world, 2018*

<b>Regions of the world</b>	<b>Countries with data on organic agriculture</b>	<b>Share of countries that provided data, %</b>	<b>Organic agricultural land, hectares</b>	<b>Per capita consumption, Euro</b>
Africa	47	77,0	2003976	0,01
Asia	42	82,4	6537226	2,4
Europe	48	94,1	15635505	50,5
Latin America and Caribbean	33	68,8	8008581	1,5
North America	3	75,0	3335002	119,9
Oceania	13	54,2	35999373	33,5
World	186	77,8	71519663	12,9

*Source: summarized by authors by [5; 8; 10; 11]*

In the Asian region, 82.4%, or 42 countries, have been covered by organic production. Organic production in Africa, Latin America and the Caribbean has been development in 77 % and 68.8% of countries, respectively. In North America it is 3 out of 4 countries, in Oceania – 13 out of 24 countries. Per capita, the most organic production has been consumed in North America – 119.9 euros, and in European countries – 50.5 euros per person,

in Oceania, consumption of organic products is 33.5 euros. In other regions, this indicator is much lower.

The total organic agricultural land area in 2018 was 71519.7 thousand hectares. The largest organic land area is in Oceania (35999.4 thousand hectares, which is 50.3% of all organic land). Australia is the leader in the organic land area not only in the region but also in the world. Europe ranks second place in the organic land area (15635.5 thousand hectares, or 23 % of the total of organic land area). In 2019, 72.3 million hectares were under organic agricultural management worldwide. The region with the most organic agricultural land is Oceania, with 35.9 million hectares, followed by Europe with 16.5 million hectares, Latin America (8.3 million hectares), Asia (5.9 million hectares), North America (3.6 million hectares) and Africa (2.0 million hectares). Oceania has half of the global organic agricultural land. Europe, a region that has had a very constant growth of organic land over the years, has over 23 percent of the world's organic agricultural land followed by Latin America with 12 percent [8].

Organic food and drink sales reached more than 106 billion euros in 2019. In 2019, the countries with the largest organic markets were the United States (44.7 billion euros), Germany (12.0 billion euros), and France (11.3 billion euros). The largest single market was the United States (42 percent of the global market), followed by the European Union (41.4 billion euros, 39 percent) and China (8.5 billion euros, 8.0 percent). The highest per-capita consumption in 2019, with 344 euros, was found in Denmark. The highest organic market shares were reached in Denmark (12.1 percent), Switzerland (10.4 percent) and Austria (9.3 percent).

Thus, although North America and Europe generate most sales, their share of the total market is shrinking. The coronavirus crisis is predicted to accelerate this trend as more regional markets for organic foods develop. In particular, the share of developing countries, such as China, India, Brazil and Indonesia, is likely to grow at a fast rate in the coming years. The pandemic, which began in spring 2020, has had a profound impact on our daily lives, as well as on the organic food industry. Consumers are turning to organic foods as they look more closely at personal health, wellness and nutrition. Organic is likely to benefit as the food industry transitions to a post-COVID world [8].

Considering the potential of organic production in terms of regions of the world, it is important to note that Africa is developing quite rapidly in this area. There were more than 2 million hectares of certified organic agricultural land in 2019. Compared to 2018, Africa reported 177054 hectares more, a 9.5 percent increase. There were at least 850000 producers. Tunisia was the country with the largest organic area (with almost 287000 hectares in 2018), and Uganda had the largest number of organic producers

(more than 210000). The country with the highest organic share of the total agricultural land in the region was the island state São Tomé and Príncipe, with 24.9 percent of its agricultural area being organic. The majority of certified organic products in Africa are destined for export markets. Key crops are coffee, olives, cocoa, nuts, oilseeds, and cotton (see page 189). Five countries in Africa have legislation on organic agriculture, and five countries are drafting legislation. Six countries have a national standard but no organic legislation.

The total area dedicated to organic agriculture in Asia was more than 5.9 million hectares in 2019. There were 1.4 million producers, most of which were in India. The leading countries by area were India (2.3 million hectares) and China (over 2.2 million hectares). Timor-Leste had the highest proportion of organic agricultural land (8.5 percent). Twenty-one countries in the region have legislation on organic agriculture, and seven countries are drafting legislation.

As of the end of 2019, 16.5 million hectares of agricultural land in Europe (countries, than belong to European Union is 14.6 million hectares) were managed organically by over 430'000 producers (European Union: almost 344000). In Europe, 3.3 percent of the agricultural area was organic (European Union: 8.1 percent). Organic farmland has increased by over 0.97 million hectares compared to 2018. The countries with the largest organic agricultural areas were Spain (2.4 million hectares), France (2.2 million hectares) and Italy (2.0 million hectares). In twelve countries, at least 10 percent of the farmland was organic. For example, Liechtenstein has the lead (41.0 percent), followed by Austria (26.1 percent) and Estonia (22.3 percent). Retail sales of organic products totalled 45.0 billion euros in 2019 (European Union: 41.4 billion euros), an increase of 8.0 percent since 2018. The largest market for organic products in 2019 was in Germany, with retail sales of 12.0 billion euros, followed by France (11.3 billion euros) and Italy (3.6 billion euros) [8; 10-11].

In Latin America, over 224000 producers managed almost 8.3 million hectares of agricultural land organically in 2019. This constituted 11 percent of the world's organic land and 1.2 percent of the region's agricultural land. The leading countries were Argentina (3.7 million hectares), Uruguay (2.1 million hectares) and Brazil (1.3 million hectares). The highest organic shares of total agricultural land were in Uruguay (15.3 percent), French Guiana (11.3 percent) and the Dominican Republic (5.5 percent). Many Latin American countries remain important exporters of organic products such as coffee, cocoa, and bananas. In Argentina and Uruguay, temperate fruit and meat are key export commodities. Nineteen countries in the region have legislation on organic agriculture, and two countries are drafting legislation. Brazil has the largest market for organic products in Latin America. Like

Asia, demand is coming from a growing middle class seeking healthy, nutritious foods.

In North America, over 3.6 million hectares of farmland were managed organically in 2019. Of these, 2.3 million were in the United States and 1.3 million in Canada, representing 0.8 percent of the total agricultural area in the region. New records were achieved in both the US organic food market and organic non-food market. Organic food sales reached 50.1 billion US dollars an increase of 4.5 percent compared to 2018. Sales of organic non-food products jumped by 8.7 percent to 6 billion US dollars. Almost six percent of the food sold in the United States is now organic. In the United States, the COVID-19 pandemic has had dramatic consequences for the organic sector. Demand for organic fresh produce grew substantially from March onward as consumers continued at-home eating in the face of restaurant closures. In fact, the Organic Produce Network predicted double-digit growth of fresh produce sales in its analysis during the year. Fresh fruit and vegetable sales averaged 18 percent year-over-year growth in each of the first three quarters. Canada's total organic market (including food and non-food items) reached 6.93 billion Canadian dollars, up from 3.5 billion in 2012, with a compound annual growth rate of 8.7 percent. The market share of organic food and beverages sold through mainstream retailers has grown from 2.6 to 3.2 percent (2019) [8].

Oceania is a region that includes Australia, New Zealand, and the Pacific Island states. There were over 18'000 producers, managing almost 36.0 million hectares. This constituted 9.7 percent of the region's agricultural land and half of the world's organic land. More than 99 percent of the organic land in the region is in Australia (35.7 million hectares, most of which is extensive grazing land), followed by New Zealand (almost 89'000 hectares) and Samoa (over 41'000 hectares). The highest organic shares of all national agricultural land were in Samoa (14.5 percent), followed by Australia (9.9 percent), Fiji (5.5 percent), Vanuatu (4.5 percent), Solomon Islands (3.5 percent) and French Polynesia (3.4 percent). Four countries in Oceania have legislation on organic agriculture, and twelve countries have a national standard but no organic legislation [8].

Australia has a strong climate: drought, hot summer temperatures and an abundance of fuel loads, such as dry leaf litter. As a consequence, over ten million hectares of bushland were incinerated. For some of the hardest-hit regions, re-establishing their organic status will take much time, and some have lost entire orchards and native tea tree plantations. Many of these operators will be without production for years. Due to the drought and shortages of available feed for many livestock producers, the year 2020 has seen the largest demand for organic hay and grain for at least a decade with livestock fodder.

The availability of land resources is the basis for the effective development of organic production. Effective use of agricultural land is essential for sustainable development of the agricultural sector of Ukraine. Land resources are the basis of material and non-material production. The development of productive forces, the scale of production and the material well-being of the people depend on the level of land use efficiency. Land resources are needed by all sectors of the economy, but their role in different areas of social production is not the same. If in industry, in addition to mining land is only a spatial basis, in agriculture it is the main means of production. The role of land in agricultural production is depended by the fact that it has a specific unique characteristic, it is fertility. Due to this characteristic, the land actively influences the process of agricultural production. There are the following types of soil fertility:

a) the natural fertility is characterized by the ability of the soil to provide plants with essential nutrients due to the stock created by soil-forming processes, as well as determined by climatic conditions;

b) the artificial fertility is created in the process of production of material goods, when a person, not satisfied with the potential of the earth, formed under the influence of natural factors, his activities trying to improve the physical-chemical and biological properties of the soil;

c) the economic (effective) fertility is a consequence of the organic unity of natural and artificial fertility [10].

The world land fund structure has been characterized in table 2.

**Table 2**

*World Land Fund*

<b>Category of lands</b>	<b>Area, million km<sup>2</sup></b>	<b>Share of land area, %</b>
Glaciers	16,3	11
Polar and alpine deserts	5	3,3
Tundra and forest tundra	7	4,7
Swamps outside the tundra	4	2,7
Lakes, rivers, reservoirs	3,2	2,1
Irrigated deserts, rocky soils and coastal sands	18,2	12,2
Forests	40,3	27
Grassy-shrub pastures and natural meadows	28,5	19
Agricultural area	19	13

Land for industrial and urban purposes	3	2
Soils prone to erosion, salinization, waterlogging, lateritic and gypsum crusts, etc	4,5	3
Drought in general	149	100
Forests	40,3	27
Grassy-shrub pastures and natural meadows	28,5	19
Agricultural area	19	13
Land for industrial and urban purposes	3	2
Soils prone to erosion, salinization, waterlogging, lateritic and gypsum crusts, etc	4,5	3
Drought in general	149	100

*Source: summarized by authors by [10]*

The land fund of the planet is 13,400 million hectares. The largest share (25%) is in Asia, the smallest (6%) - in Australia and Oceania. The largest share of pastures is in Africa (24%). Arable land (11% of the land fund) provides 88% of food. Pastures and meadows, which occupy 26% of the land fund, give another 10% of products.

Countries and regions are unequally provided with land resources, especially agricultural lands. Eurasia accounts for 59% of the world's arable land, North and Central America – 15%, Africa – 15 %, South America – 8 %, Australia – 3 %. Most (80 %) of the world's arable land is located in the arid zone. The largest share of pastures is located in Africa (24 %) and Asia (18 %). The average world indicator of agricultural land supply per capita is 0.23 ha. In different countries, this figure differs significantly. In Australia it is 2.45 hectares per person, in Canada – 1.48 hectares, in Ukraine – 1.07 hectares, in Russia – 0.9 hectares. In China, Bangladesh and Belgium there is 0.07 ha per capita, in Egypt – 0.05 ha, in Japan – 0.03 ha.

The agricultural land is land provided for the production of agricultural products, agricultural research and training activities, the location of relevant production infrastructure, including the infrastructure of wholesale markets for agricultural products, or intended for these purposes.

Agricultural lands include agricultural lands (arable lands, perennial plantations, hayfields, pastures and fallow lands) and non-agricultural lands (field protective forest belts and other protective plantings, except for those

referred to lands of other categories etc.)

Arable land is any land capable of being ploughed and used to grow crops. For the purposes of agricultural statistics, the term often has a more precise definition. For example, arable land is the land under temporary agricultural crops (multiple-cropped areas are counted only once), temporary meadows for mowing or pasture, land under market and kitchen gardens and land temporarily fallow (less than five years). The abandoned land resulting from shifting cultivation is not included in this category. Data for arable land are not meant to indicate the amount of land that is potentially cultivable. In the Eurostat glossary the similarly definition use: land worked (ploughed or tilled) regularly, generally under a system of crop rotation. Non-arable land can sometimes be converted to arable land through methods such as loosening and tilling (breaking up) of the soil, though in more extreme cases the degree of modification required to make certain types of land arable can become prohibitively expensive [10].

Pasture is land used for grazing. Pasture lands in the narrow sense are enclosed tracts of farmland, grazed by domesticated livestock, such as horses, cattle, sheep, or swine. The vegetation of tended pasture, forage, consists mainly of grasses, with an interspersion of legumes and other forbs (non-grass herbaceous plants). Pasture is typically grazed throughout the summer, in contrast to meadow which is ungrazed or used for grazing only after being mown to make hay for animal fodder. Pasture in a wider sense additionally includes rangelands, other unenclosed pastoral systems, and land types used by wild animals for grazing or browsing.

Hay is mowed and dried grass from meadows, fields, steppes, forests and even swamps. Straw is the dried stems of different crops (cereals, legumes, flaxseed, buckwheat and others) that remain after harvest (threshing) [10].

Australia is the country with the most organic agricultural land. It is estimated that 97 percent of the farmland is extensive grazing areas. Organic agricultural land in Australia was 27.1 million hectares in 2016 and 35.69 million hectares in 2019. Argentina is second, followed by Spain in third place (Fig. 1).

The 10 countries with the largest organic agricultural areas have a combined total of 56.5 million hectares and constitute almost 80 percent of the world's organic agricultural land. Apart from the organic agricultural land, there are further organic areas such as wild collection areas. These areas constitute approximately 35 million hectares. There is a significant increase in the of organic agricultural land area in 2019 compared to 2016. Also during this period there is a change of leaders. In 2016, the first five positions have been occupied by such countries as Argentina, China, the United States, Spain, Italy, and Uruguay. In 2019, the leaders were Argentina, Spain, France, USA, and India. Ukraine occupies 20th position

with organic agricultural land area 468 thousand hectares. The share of the world's agricultural land that is organic is 1.5 percent. The highest organic share of total agricultural land, by region, is in Oceania (9.6 percent) followed by Europe with 3.3 percent and Latin America with 1.2 percent. In the European Union, the organic share of the total agricultural land is 8.1 percent. In the other regions, the share is less than one percent. Many individual countries, however, have a much higher organic share, and in 16 countries, 10 percent or more of the agricultural land is used for organic production. Most of these countries are in Europe. The country with the highest organic share is Liechtenstein, with 41 percent of its agricultural land under organic management. It is important to note that many island states have high shares of agricultural land under organic management, such as Samoa and São Tomé and Príncipe.

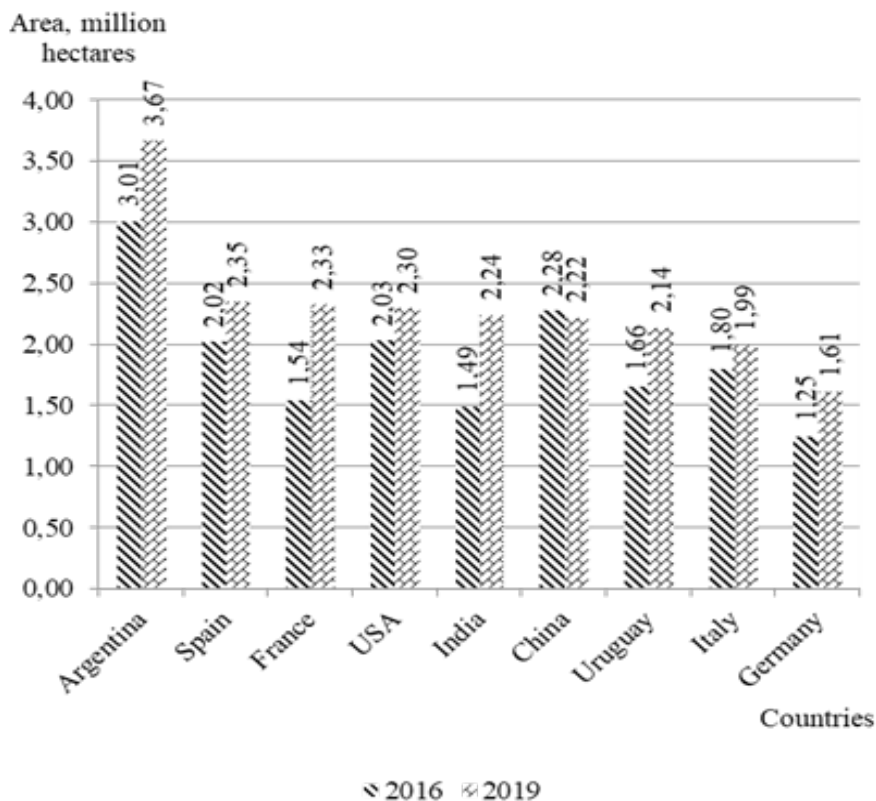


Fig. 1. Countries with the largest areas of organic agricultural land (without Australia)

Source: summarized by authors by [8]

Thus, organic production is a very promising area of the agricultural sector development. Global trends in this area are positive. The organic products demand is constantly increasing because people pay more and more attention to their health. The organic production development potential depends primarily on the availability of organic agricultural land, so it is necessary to pay attention to the tillage technology, fertilization and ensure careful treatment of land resources.

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# COMPETITIVENESS ANALYSIS OF THE REGIONAL HIGHER EDUCATION SYSTEMS OF UKRAINE IN THE CONTEXT OF THE NATIONAL SECURITY

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Introduction. Globalization processes intensify competition between universities and higher education (HE) systems of states and regions. The consequences of these processes are especially significant for national security of post-Soviet countries oriented towards integration into the European educational and scientific space. Ukraine is one of such countries. On the one hand, the Ukraine is reforming its HE system by adopting international quality standards; on the other hand, the country is experiencing significant losses due to the military conflicts, educational and labor migration.

According to the UNESCO Institute for Statistics [13] the number of outbound internationally mobile students from Ukraine increased from 35.316 to 72.063 for the period 2010-2018. The Top 5 countries where Ukrainian youth migrates the most include neighbouring nations with higher quality of life standards and higher incomes. According to a survey of foreign students in Poland [4], these reasons motivate the majority of Ukrainian youth to stay abroad after studying abroad.

Imbalances in social and economic development, including in HE, are a factor in youth losses, especially at the regional level. These problems are especially relevant for border regions, as well as areas with difficult environmental situations. The aforementioned factors, along with several other social and economic problems related to regional HE systems, emphasize the importance of a comprehensive analysis and identification of ways to increase educational competitiveness.

The purpose of this study is to help increase the competitiveness of HE systems in Ukraine's regions based on a comprehensive analysis of their quality, social responsibility and economic efficiency.

The first part of the study offers a conceptual model for analyzing the competitiveness of HE systems based on quality, social responsibility and economic efficiency. In the second part we propose the methodological framework and list of indicators for analyzing the regional HE systems based on developed conceptual model. The third part contains the results

of an analysis of HE systems in 25 regions of Ukraine, as well as strategic areas for improving their competitiveness.

Methodological approaches to the competitiveness analysis of the regional higher education system. Higher education is a particular type of social activity and a sector of the regional economy. Firstly, according to classical works and contemporary studies of HE (e.g. Altbach [1], McCowan [7], Teichler [11]) this sector is crucial in the development of human, social and intellectual capital. The second characteristic is the generation of new knowledge and skills that result from the activity of higher education institutions (HEIs) and provide not only benefits in the labour market, but also shape the innovation potential of economic growth in other sectors of the economy. The third characteristic is related to a set of general and specific functions of HE in the regional development (Table 1).

**Table 1**

*Matrix of the relationship between general and specific functions of higher education*

		Special functions of higher education		
		Teaching	Research	Public services
General public functions of higher education	Social	Development of social capital through social interaction and intercultural communication	Generation of new ideas, knowledge that are implemented into social innovations and provide social security	Implementation of the ideas of responsibility in the socio-cultural, ecological spheres of society
	Economic	Development of intellectual capital, which ensures competitiveness in the labor market	Generation of ideas that are implemented into innovations and provide the economy's competitiveness	Implementation of the ideas of social responsibility in the economic sphere of society
	Political	Development of leadership skills that provides for the formation of the society's political elite	Generation of new knowledge that provides security at the level of national, regional and local political systems	Critical comprehension and public discussion of social issues and politics.

*Source: developed by the authors*

The special features of HE as an object of analysis and competitiveness management are also related to the influence of state and regional regulatory institutions, on the one hand and irrational behavior models in the educational services market, on the other hand.

The features defined above are important for understanding the factors

of HE competitiveness as well as its impact on the economic growth and sustainable development of the region and national security.

From the standpoint of an inter-disciplinary approach, we propose the definition of higher education as a system of interconnected informal (values, ways of thinking, behaviour, etc.) and formal (laws, standards, educational providers, stakeholders, etc.) institutions that provide understanding of the key role of knowledge in self-improvement, its storage, transmission and generation of new knowledge for the implementation of individual and institutional development goals, as well as determine the intellectual potential and competitiveness of all spheres of a society's life.

The proposed definition provides outlines of the institutional architecture of the regional HE system, the identification of its components, including (Fig. 1): 1) formal and informal providers, 2) products, 3) internal and external stakeholders.

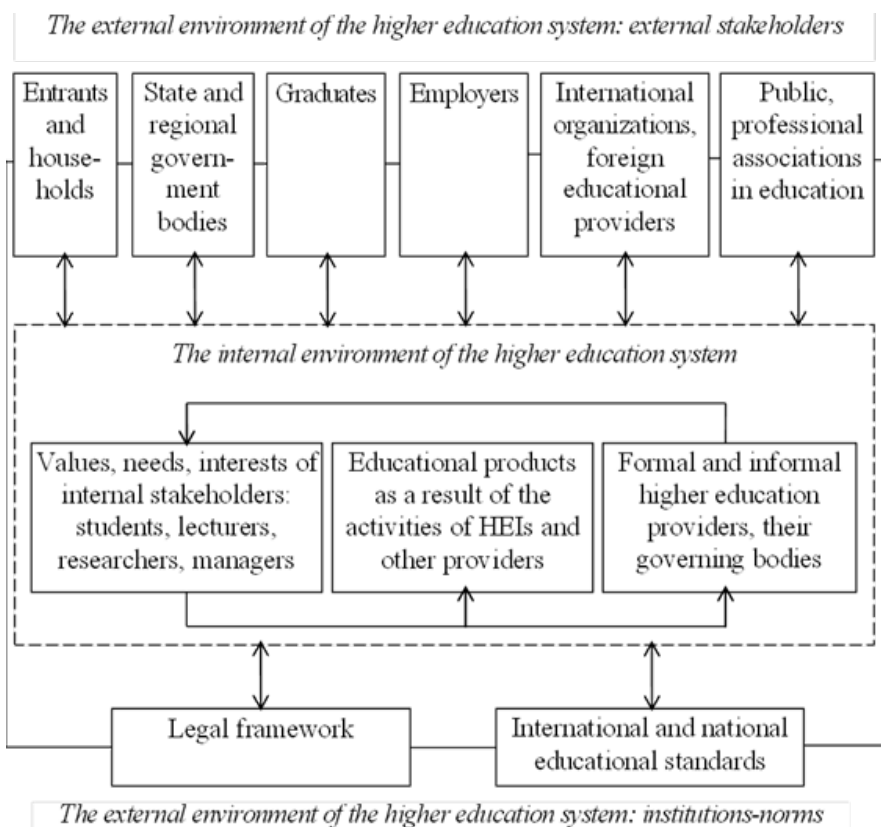


Fig. 1. Institutional architecture of the higher education system

Source: developed by the authors

The study of goals on the HE development, defined in particular by the Global Goals of Sustainable Development, the Incheon Declaration [16; 17], shows that such goals have significant differences when it concerns their adaptation to the regional or national level of the country's development. At the same time, summarizing the development goals related to the HE indicates that its global competitiveness can be interpreted as the function of three key variables – quality, social responsibility and economic efficiency.

The conceptual model for analysis of the HE system competitiveness [6] is based on the following highlights:

1) providers, their products and stakeholders are the main elements of the higher education system. Stakeholders' interests, the potential and performance results (products) of providers form the basis of the model and are key objects for institutional analysis;

2) quality, social responsibility and economic efficiency are the key criteria for institutional analysis of the higher education system competitiveness;

3) it is advisable to develop different types of applied models of analysis, depending on the level of decision-making (local, regional, national) in higher education competitiveness management.

The proposed conceptual model makes it possible to substantiate methodological approaches to the development of analytical framework and determining factors of the higher education system competitiveness at the regional level.

Indicators for competitiveness analysis of the regional higher education system. On the basis of a conceptual model for the HE analysis, we propose methodological approaches to competitiveness measurement according to three criteria – quality, social responsibility and economic efficiency.

Taking into account international principles of quality management, the features of the HE system as a governance object, the needs of balancing interests of stakeholders we offer a scheme for the quality analysis by the following criteria: 1) consumers' satisfaction (students, graduates, employers, etc.); 2) quality of the institutional environment; 3) quality of performance results in HE; 4) quality of suppliers (entrants, secondary education institutions, etc.).

Lists the indicators of the higher education system quality at the regional level, which also take into account the peculiarities of its organization in Ukraine.

The indicators of the analysis of HE quality have different weights for particular stakeholder groups. In this regard, the proposed list can be used as a “set of possible indicators” to make decisions for improving the competitiveness of HE by quality criterion.

The generalization of theoretical and methodological approaches to understanding the essence of social responsibility of HEIs [5] as well as

Guidance of International Organization for Standardization, gives grounds to distinguish three types of classifications in the analysis of this object:

**Table 2**

*Indicators of quality in competitiveness analysis of the region's HE system*

<b>Analysis object</b>	<b>Analysis indicators</b>
Consumers' satisfaction	<ul style="list-style-type: none"> <li>• Level of students' and graduates' satisfaction with the HE quality</li> <li>• Level of employers' satisfaction with the HE quality</li> </ul>
Quality of the institutional environment	<ul style="list-style-type: none"> <li>• Availability of institutions that monitor the HE quality</li> <li>• Number of lecturers and researchers per 10,000 inhabitants</li> <li>• Average age of lecturers and researchers in HEIs</li> </ul>
Performance results	<ul style="list-style-type: none"> <li>• Employment rate of HEIs graduates</li> <li>• Number and share of HEIs students – winners of international and national competitions</li> <li>• Number of patents per HEIs researcher</li> <li>• Number of HEIs in the world university rankings</li> <li>• Share of international students in HEIs</li> <li>• Number of works with international indexation per lecturer and researcher of HEIs</li> </ul>
Quality of suppliers	<ul style="list-style-type: none"> <li>• Average / median grade of the document on secondary education of entrants / first-year students of HEIs</li> <li>• Share of first-year students with the competitive score of 180 or higher at the External Independent Testing Exam</li> </ul>

*Source: developed by the authors.*

- the first type: areas of social responsibility: legal, social, economic, environmental.
- the second type: internal and external stakeholders who are interested in the fulfilment of HE goals;
- the third type: main activities in HE, which ensure the implementation of its basic goals and functions.

Taking into account the above mentioned approaches to understanding the content and levels of social responsibility, it is possible to define a set of indicators for measuring the competitiveness of the HE system by the criterion of social responsibility (Table 3).

In a broad sense, the higher education system is effective if it enhances the quality of life of its stakeholders, generates new knowledge, and ensures innovative development and competitiveness of business entities in the region of HEI activity. In a narrow sense, the economic efficiency of the HE system can be measured through the ratio of economic results and assets of the system.

**Table 3***Indicators of social responsibility in competitiveness analysis of the region's HE system*

<b>Analysis object / HE stakeholders</b>	<b>Analysis indicators</b>
Students	<ul style="list-style-type: none"> <li>• Number and share of students with disabilities and special needs</li> <li>• Number of the recorded facts of violations of students' rights</li> <li>• Number and share of students participating in projects related to regional development</li> <li>• Number and share of students enrolled out of the funds of local budgets</li> </ul>
Lecturers, researchers and HEI management	<ul style="list-style-type: none"> <li>• Average salary in the region's HE system</li> <li>• Number of the reported facts of violations of the rights of lecturers and researchers</li> <li>• Number and share of lecturers and researchers involved in regional development projects</li> </ul>
Regional management authorities	<ul style="list-style-type: none"> <li>• Regional budget funds directed to the development of the region's higher education</li> <li>• Volume of the regional contract for the training in regional HEIs</li> <li>• Index of Regional Human Development</li> </ul>

*Source: developed by the authors*

Summarizing methodological and applied approaches to the analytics of HE efficiency developed in the works of Brint and Clotfelter [2], Matyukh [13], Moyseyenko and Hrynkevych [8], we propose to use three types of economic efficiency indicators:

- 1) result indicators that reflect the activity of the HEIs in absolute terms;
- 2) performance indicators that make it possible to compare absolute indicators per unit of HEIs assets, student, etc.;
- 3) income diversification indicators that reflect the specific weight of income sources from various activities in total revenues of the HE system.

Table 4 presents the system of indicators for monitoring the HE competitiveness by the criterion of economic efficiency.

Competitiveness analysis of the HE system involves not only the development of the indicators system, but also the use of reliable tools for measuring them, information and managers capable of achieving target indicators of competitiveness improvement. In this context Higher Education Reform Experts give the example of using "Close the loop" principle in monitoring the higher education. The essence of the principle is to monitor only those indicators on which it is obligatory to make appropriate management decisions.

**Table 4***Economic efficiency indicators in competitiveness analysis of the region's HE system*

<b>Analysis object</b>	<b>Analysis indicators</b>
Results	<ul style="list-style-type: none"> <li>• Number of students per 10 thousand people of the region</li> <li>• Number and share of students studying under contract</li> <li>• Revenue of the region's HE system</li> <li>• Average salary of employees with HE</li> </ul>
Performance	<ul style="list-style-type: none"> <li>• Number of innovative enterprises in region</li> <li>• Share of innovative products in region</li> <li>• Unemployment rate among people with HE</li> <li>• Revenue of the region's HE system per unit of HEIs assets</li> <li>• Revenue of the region's HE system per employed in HEIs</li> </ul>
Income diversification	<ul style="list-style-type: none"> <li>• Revenue share from educational activity in total revenues of the region's higher education</li> <li>• Revenue share from research activity in total revenues of the region's higher education</li> <li>• Revenue share of extra budgetary funds in total revenues of the region's higher education</li> </ul>

*Source: developed by the authors*

Modern model for improving the higher education competitiveness in Ukraine's regions. Despite numerous works on economics and management in higher education, there is little research, which can be used to justify strategic priorities for the development of regional HE systems with a list of target indicators.

The purpose of this part of the study is to substantiate the strategic priorities for the HE development in the regions of Ukraine, taking into account national interests, regional peculiarities, as well as the globalization of the educational and scientific space.

In accordance with this goal, the analysis of problems of the HE competitiveness in Ukraine's regions by the criteria of quality, social responsibility and economic efficiency is conducted; the regional priorities for enhancing the HE competitiveness in Ukraine with the use of appropriate indicators are substantiated.

The results of testing the model indicate a significant asymmetry of regional HE systems by the competitiveness indicators. In the analysis of quality the most noticeable is the unequal distribution of Ukraine's regions by the level of international academic reputation of HEIs, in particular, their number in world university rankings (Table 5).

**Table 5***Ukraine's HEIs and their scores in the world rankings (2018-2020)*

<b>Region of Ukraine</b>	<b>The Times Higher Education World University Rankings</b>	<b>QS World University Rankings</b>
Kyiv (Ukraines Capital)	Taras Shevchenko National University of Kyiv (800-1001+) National Technical University of Ukraine – Igor Sikorsky Kyiv Polytechnic Institute (1001+)	Taras Shevchenko National University of Kyiv (411-420; 541-550)
		National Technical University of Ukraine – Igor Sikorsky Kyiv Polytechnic Institute (501-550; 701-750)
		National University of Kyiv-Mohyla Academy (1001+)
Donetsk region	-	Vasyl Stus Donetsk National University (801-1000)
Lviv region	Ivan Franko National University of Lviv (1001+)	Lviv Polytechnic National University (751-800)
	Lviv Polytechnic National University (80-1001+)	
Sumy region	Sumy State University (1001+)	Sumy State University (801-1000; 701-750)
Kharkiv region	V.N. Karazin Kharkiv National University (1001+)	V.N. Karazin Kharkiv National University (401-410; 491)
		The National Technical University «Kharkiv Polytechnic Institute» (701-750; 651-700)

*Source: Quacquarelli Symonds [10]; Times Higher Education [14].*

Only 8 of the 281 Ukrainian HEIs were ranked in the Times Higher Education World University Rankings and QS World University Rankings in 2018-2020. These universities represent only 5 of 26 Ukraine's regions. It should be noted that these regions had also the high quality indicators of secondary education of HEIs entrants, in particular in mathematics [15], see Fig. 2.

The tendency of increasing imbalance in the number of entrants coming to the region for HE and leaving it is dangerous for balanced regional development. The donor regions that have the greatest loss of intellectual potential as a result of interregional and international migration (from 70% or more of potential students) include 10 regions (Fig. 3).

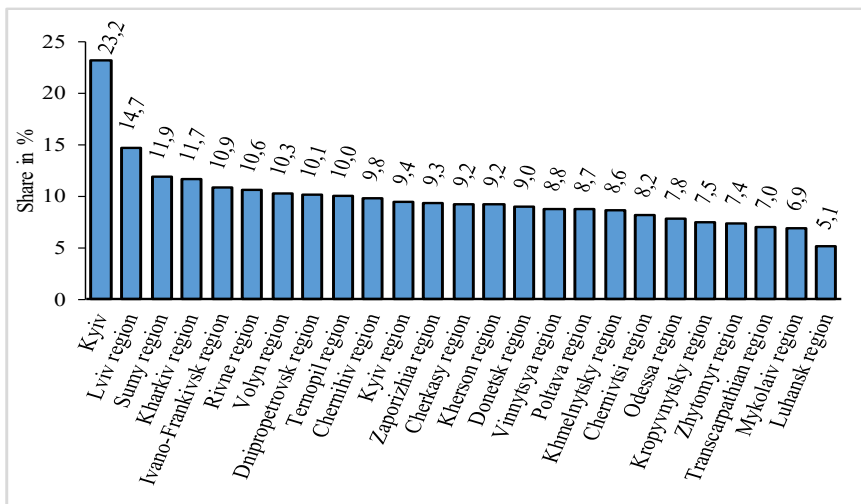


Fig. 2. Share of HEI entrants with the score in math 180 or higher at the External Independent Testing Exam, % (2019)

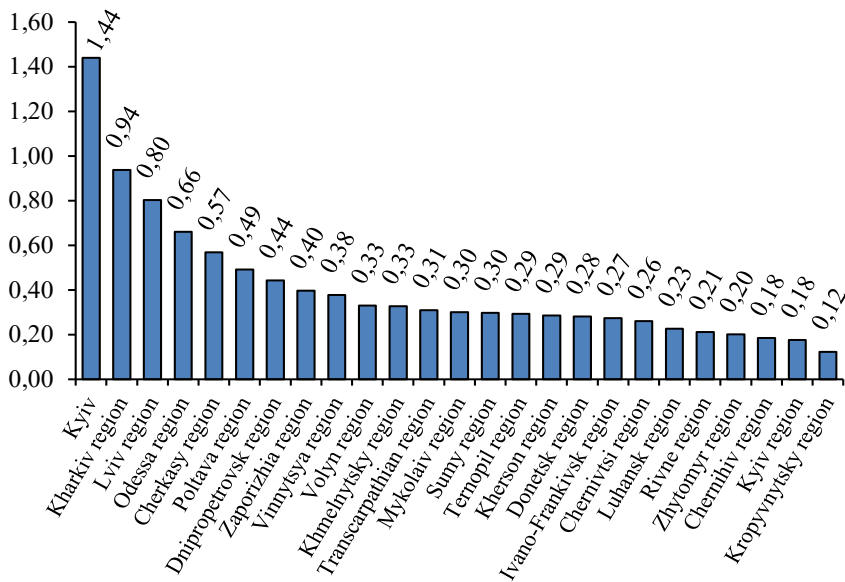


Fig. 3. Ratio of HEI entrants and high school graduates participating in the External Independent Testing Exam in this region (2019)

Source: calculated by the authors using [12; 15].

Taking into account the Global Sustainable Goals, the objectives determined in Ukraine’s Regional Development Strategies as well as the results of the quality analysis of the HE systems in Ukraine’s regions we propose the following priority directions of increasing their competitiveness (Table 6).

**Table 6**

*Priority areas for improving the competitiveness of HE systems in Ukraine’s regions by the criterion “Quality”*

<b>Priority areas</b>	<b>Regions of Ukraine</b>	<b>Target indicators</b>
<i>Entrants and students</i>		
Increase in the attractiveness of the region for higher education entrants, reducing human losses as a result of interregional educational migration	Kropyvnytskyi, Kyiv, Chernihiv, Kherson, Zhytomyr, Transcarpathian, Donetsk, Volyn, Rivne, Vinnytsia, Khmelnytskyi, Mykolaiv regions	Ratio of HEI entrants and high school graduates participating in the External Independent Testing Exam in this region
Increase in the attractiveness of the region for international students	Dnipropetrovsk, Lviv, Odesa regions, the city of Kyiv	Share of international students
<i>Lecturers and researchers</i>		
Improving the academic reputation of HEIs through publications in editions indexed in international scientometric databases	Kropyvnytskyi, Rivne, Kherson, Mykolaiv, Khmelnytskyi, Chernihiv, Zhytomyr, Poltava, Vinnytsia, Ivano-Frankivsk, Cherkasy regions	Number of works per 100 HEIs lecturers and researchers in scientific journals indexed in international scientometric databases (Scopus, Web of Science, etc.)
<i>HEI management</i>		
Improving the academic reputation of HEIs in national rankings	Chernihiv, Zhytomyr, Cherkasy, Kherson, Volyn, Rivne, Kropyvnytskyi, Poltava, Zaporizhzhia, Khmelnytskyi, Mykolaiv, Luhansk, Transcarpathian, Ternopil, Ivano-Frankivsk regions	Region’s HEI rating in the National Academic Rating “Top 100 Ukraine”
Improving the international academic reputation of HEIs	The city of Kyiv; Kharkiv, Lviv, Dnipropetrovsk, Sumy, Odesa, Chernivtsi, Vinnytsia, Donetsk, Ivano-Frankivsk regions	Number of region’s HEIs and its scores in the world university rankings (e.g. The Times Higher Education World University Rankings; QS The World University Rankings, etc.)

Enhancement of the region's HEIs participation in international educational associations	Kherson, Kropyvnytskyi, Zaporizhzhia, Khmelnytskyi, Kyiv, Lviv, Rivne, Zhytomyr regions	Number of the region's HEIs – participants of international associations
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Source: developed by the authors.

Ukraine does not exceed 1% (2019), whereas, for example, in Poland, this indicator is twice as high [3], Fig. 4.

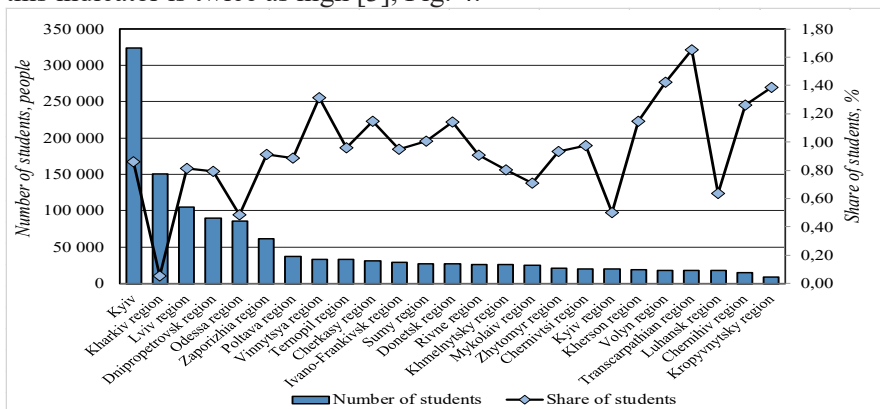


Fig. 4. Number and share of students with disabilities in HEIs

Source: calculated by the authors using [12]

The significant differences in distribution of the Ukrainian regions by the financial support of HEIs are noticeable. The share of HEI students studying at the expense of local budgets confirms this conclusion (Fig. 5).

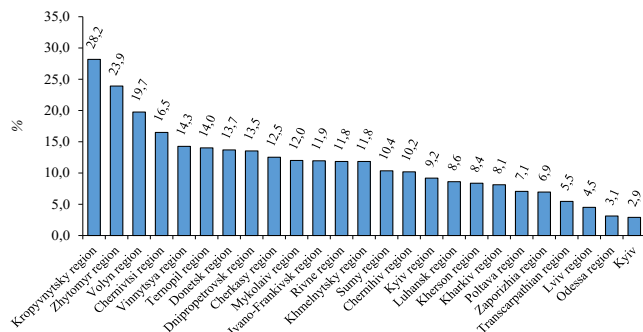


Fig. 5. Share of HEIs students studying at the expense of local budgets, % (Ukraine's regions, 2019)

Source: calculated by the authors using [12]

The priorities for enhancing the competitiveness of HE systems in Ukraine's regions by the criterion of social responsibility are defined in Table 7.

**Table 7**

*Priority areas for improving the competitiveness of HE systems in Ukraine's regions by the criterion "Social responsibility"*

<b>Priority areas</b>	<b>Regions of Ukraine</b>	<b>Target indicators</b>
<i>Entrants and students</i>		
Increasing the accessibility of higher education to people with special educational needs	All the regions of Ukraine	Number of students with disabilities in HEIs
<i>Share of students with disabilities in HEIs</i>		
Increasing the level of providing students with dormitories and their quality	Ivano-Frankivsk, Transcarpathian, Kherson, Zaporizhzhia, Mykolaiv, Lviv, Poltava, Vinnytsia, Donetsk, Cherkasy, Kropyvnytskyi (Kirovohrad), Zhytomyr, Chernihiv, Kyiv, Khmelnytskyi, Sumy, Volyn, Dnipropetrovsk regions, the city of Kyiv	Level of the provision of HEI students with dormitories
<i>Students, lecturers and researchers, HEI management</i>		
Increasing the level of academic integrity and respecting the rights of lecturers, researchers and students	Kherson, Rivne, Luhansk, Donetsk, Odesa regions	Number of the reported facts about violations of the rights of lecturers, researchers in HEIs
<i>Regional authorities in higher education</i>		
Increasing the role of local authorities in shaping the volume and structure of training for regional development needs	Donetsk, Odesa, Transcarpathian, Kharkiv, Lviv, Luhansk, Zaporizhzhia, Poltava, Dnipropetrovsk regions, the city of Kyiv	Share of students studying at the expense of the local budget, %

*Source: developed by the authors*

The lack of statistical data on revenues and expenditures in HE at the regional level makes it difficult to analyze its competitiveness by the criterion of economic efficiency. By performance criterion in the economic efficiency analysis of HE systems, the regional distribution of patents for inventions

and utility models per 100 researchers is the most disproportional. In most Ukraine's regions, the level of interconnection of research and innovative activity results remains low. This conclusion confirms the indicator of the number of innovative enterprises in the regions of Ukraine (Fig. 6).

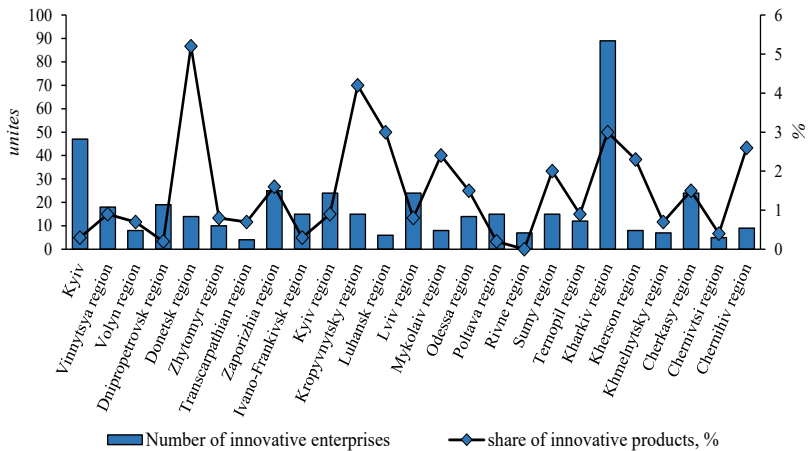


Fig. 6. Number of innovative enterprises and the share of innovative products in industry, % (Ukraine's regions, 2019)

Source: calculated by the authors using [12]

The priority areas for enhancing the competitiveness of higher education systems in Ukraine's regions by the criterion of economic efficiency are identified in Table 8.

**Table 8**

*Priority areas for improving the competitiveness of HE systems in Ukraine's regions by the criterion "Economic efficiency"*

Priority areas	Regions of Ukraine	Target indicators
<i>HEI graduates, employers</i>		
Increasing the employment rate of HEIs graduates studied at the expense of state and local budgets	Lviv, Ternopil, Transcarpathian, Chernihiv, Donetsk, Cherkasy, Ivano-Frankivsk, Kropyvnytskyi, Rivne, Kharkiv, Khmelnytskyi, Dnipropetrovsk regions, the city of Kyiv	Official employment rate of graduates studied at the expense of state and local budgets, %
<i>Lecturers and researchers, HEI management</i>		

Increasing the effectiveness of scientific research	Chernihiv, Sumy, Mykolaiv, Dnipropetrovsk, Kharkiv, Volyn, Zaporizhzhia, Lviv, Kyiv, Odesa, Transcarpathian, Zhytomyr, Cherkasy, Kropyvnytskyi, Poltava, Kherson, Chernivtsi, Ivano-Frankivsk regions, the city of Kyiv	Number of patents for inventions, utility models, industrial designs per 100 HEIs researchers
Increase in the revenues from R&D in the region	All the regions of Ukraine	Revenue share from scientific activity in total revenues of the region's HEIs
<i>HEI management, employers</i>		
Increasing the level of HEIs cooperation with domestic and foreign enterprises in innovative activity	Transcarpathian, Chernivtsi, Poltava, Khmelnytskyi, Mykolaiv, Volyn, Kherson, Rivne, Dnipropetrovsk, Cherkasy, Ivano-Frankivsk, Chernihiv, Vinnytsa, Donetsk, Kropyvnytskyi, Kyiv, Zhytomyr, Odesa, Zaporizhzhia, Ternopil, Lviv regions, the city of Kyiv	Share of enterprises that cooperate with HEIs in innovative activity, %

*Source: developed by the author*

Thus, the results of analysis of the competitiveness indicators of HE systems in the regions of Ukraine points out to significant imbalances in their development in terms of quality, social responsibility and economic efficiency. For example, the high values of indicators of academic reputation of lecturers and researchers, the level of entrants' preparation for the External Independent Testing Exam in Lviv region ensure the leadership position by quality criterion. Whereas, the low level of innovative activity in the region's industry, the problems of providing students with dormitories, the accessibility of higher education for socially vulnerable groups of the population, the low share of foreign students cause a decrease in the competitive position of Lviv region among other regions of Ukraine.

According to the set of indicators used to estimate the HE system competitiveness of Ukraine's regions, the Top-10 leaders include the city of Kyiv, Kharkiv, Lviv, Sumy, Chernivtsi, Dnipropetrovsk, Odesa, Poltava,

Ivano-Frankivsk, Transcarpathian regions. These regions provide not only high indicators' values of the HEI academic ranking, but also a greater balance of educational, social and economic indicators of competitiveness development.

The priority areas for improving the competitiveness of HE systems in Ukraine's regions, defined on the basis of the proposed conceptual model and the correspondent analytical framework, can be used in the design of both national and regional strategies for enhancing the higher education system of Ukraine.

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## **SYMBIOSIS OF STRATEGIC PLANNING AND TIME MANAGEMENT AS A TOOL OF BUSINESS CONSULTING**

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The problem of time costs and constant lack of time in various spheres and areas of human life is becoming increasingly important. The time factor does not have the properties to increase and accumulate, which means that the success of a particular individual or organization depends on the efficient use of time. With the growing interest in time management, the latest concepts of time management are emerging and evolving [11].

To understanding modern time management, it is necessary to analyze the stages of its development. Therefore, researchers identify several stages in the development of time management (Fig. 1).

The stage of Taylorism covers the period 1910-1940. F. Taylor believed that in Western society in the early XX century formed a kind of stereotype

of «working with coolness», when workers due to natural inclination, «natural laziness» of man, as well as due to the established cultural tradition of «circular guarantee» deliberately slow down work. The «golden mean» between unreasonable requirements for speed and productivity, and «natural laziness» is, according to Taylor, it is in the methods of scientific production management; necessarily include such an important area as time management [6].

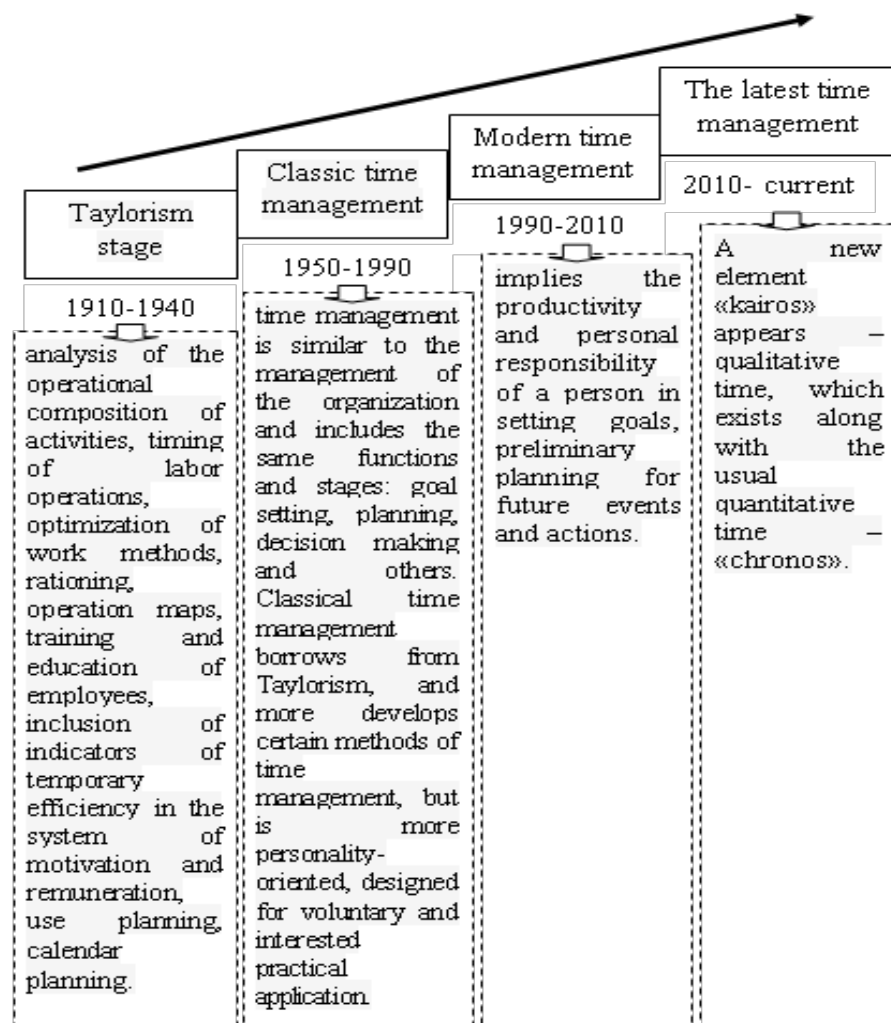


Fig. 1. Stages of time management formation [formed on the basis of 5; 6; 10]

Classical time management covers the period 1950-1990. The ideas of time management developed within the theoretical and applied management. There was an enrichment of management as a science that emerged at the intersection of economics, psychology and sociology.

Although time management is more humanitarian in nature, it uses the ideas and methods of mathematics and cybernetics. It was during this period that such sections as systemic, situational, synergetic approaches, decision theory, and others were added to management theory. There was a wide variety of research and practical recommendations in practical management and, inextricably linked to it, time management consulting. Modern time management covers the period from the 1990s to the horse of the 2010s. At this stage, it acts not only as a social practice, but is one of the most important areas of business consulting. That is, there are not only individual consultants, but also entire consulting organizations specializing in time management.

The first stage of this stage involves the needing to record cases. It was characterized by the compilation of lists of future cases in order to organize and reasonably allocate time between different activities. Time is distributed in the order of receipt of cases and for a small period of time.

The second stage involves calendar planning, i.e. forecasting the event until a certain point in the future, so the widespread use of flip calendars and notebooks for recording business meetings, organizers and more. Cases were distributed for a longer period, but the principle of priority is not observed. Cases are simply entered in the notebook in the order of receipt and executed in the available time. If a case is not completed, its implementation is simply postponed to the future, regardless of how important the case is.

The third stage is planning according to priorities. To the parameters of the two previous systems is added the ranking of tasks by importance and urgency. The goals of the activity are also divided into short-, medium- and long-term. The concept of daily planning is born: first the list of tasks is written down, and then they were distributed to performance according to degree of importance and urgency.

The third stage of time management takes a significant step in the direction of value planning. Productivity is significantly increased through purposeful daily planning and setting priorities. The third stage was considered the pinnacle of time management, but it has some serious shortcomings, not related to the idea itself, but to the imperfection of the paradigms and the lack of some vital elements.

The fourth stage is modern time management. Today, the organization of time was considered in close connection with the life position of the individual as a tool for the maximum realization of personal potential in accordance with life values, worldview and worldview of man. The human

mission is considered as a prerequisite for the formation of goals, goals as a subject for equipping with criteria, values as a basis for priorities and the desire for self-development as the main motivator [6].

The latest time management has been developing since 2010 to the present.

A significant point and difference from the previous stages is the priority of the importance of the case over its urgency. A new element of «kairos» appears – qualitative time, existing along with the usual quantitative time – «chronos». This stage absorbs all the advantages of the first, second and third generations, and gets rid of their disadvantages. In addition to the features of classical and modern concepts, this stage of development involves taking into account aspects of the digital transformation socio-economic relations between different actors at different levels of interaction [1; 4].

Based on the approaches, we formulate the definition of time management as a basic concept of research. In this study, time management will be understood as a subsystem within the overall management system of the organization, which is characterized by the features shown in Fig. 2.

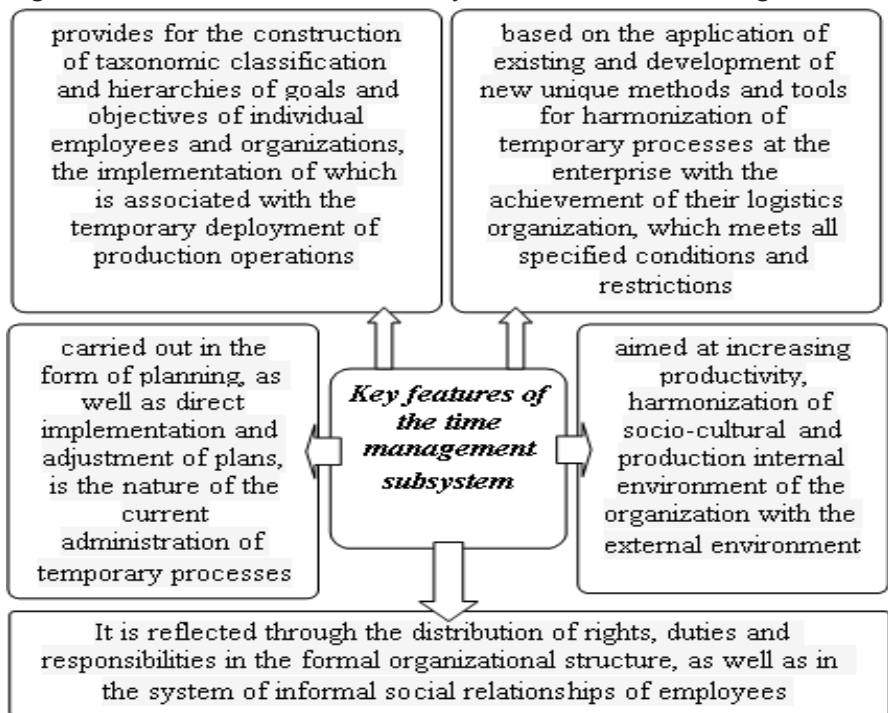


Fig. 2. Key features of the time management subsystem [formed on the basis of 1; 2; 4; 8]

The effectiveness of a modern business entity largely depends on the effective management of the leader, one of the main functions of which is strategic planning. Planning is the process of defining goals, developing tasks and methods of achieving them. Strategic planning is the basis for the management of employees of the enterprise, the process of determining the strategy or directions of enterprise development, decision-making on the allocation of resources within this strategy, including capital and human resources.

Strategic planning consists of several interrelated elements:

- documentation. When implementing a strategic plan, a simple schematic business plan is not enough. The plan should adequately reflect the details of goals and directions of development. It is necessary to develop a system of separate but interconnected plans such as: the main direction of development, production plan, design and estimate (for specific tasks) plans, etc.;

- availability and relevance of information. Forecasting the prospects of the enterprise can be based only on reliable, timely data that have undergone analytical processing;

- management of the planning process. Senior management must be able to respond quickly and adapt to change, control the process of adaptation of employees, because for the normal functioning of the enterprise changes are inevitable;

- organized planning. the main goal of planning is a synergetic effect: maximum achievements at minimum costs. However, to achieve synergy, the planning process must be subject to a certain order [7; 9].

In general, planning and time management were inextricably linked, as the latter involves the acquisition of such important skills as prioritization, planning, delegation of responsibilities and powers, ranking goals. The solution of these tasks facilitates the solution of more serious tasks: acquiring skills of rational use of time resources, increasing their own efficiency and effectiveness of work, organization of work and leisure processes, etc. At the same, the main tasks of time management in the field of planning include:

- analysis of time spent on certain tasks;
- goal setting, formulation and definition;
- drawing up a plan to achieve the goal, as well as setting priorities;
- goal realization;
- compiling a list of tasks to be performed;
- time recording by timing [7].

Based on the above, it is advisable to highlight the basic rules of time management:

- need to be able to set strategic goals in all areas of life that matter: work, family, personal life, self-development, relationships with loved

ones and friends, financial well-being, education. The main goals are the driving forces of life. They provide meaning and direction, facilitate the «procedure» of weeding out unnecessary cases;

- need to skillfully approach the choice of ways to achieve the desired result. Even after some time, goals may not change over the years, methods of achievement may change as needed;

- need to follow the daily ritual of composing tasks for the day and follow them;

- no need to create multiple lists;

- it is always necessary to bring the case to an end [3].

Complementing these principles with the methodology proposed by Covey, we can add six principles of building a time management system:

coherence (coherence) – interconnectedness, unity of all elements of the individual time management system (according to Covey: unity between vision and mission, roles and goals, priorities and plans, desires and discipline);

balance – «balance» in this case means a harmonious distribution of time so that it was enough to achieve important goals in various spheres of life (family, work, health, etc.);

concentration – need to constantly remember the key importance of activities for your life and focus primarily on such matters. To do this, Covey suggests focusing not on daily planning, but weekly. Weekly planning allows you to reserve fairly long periods of time (afternoon-day) for important but not urgent matters;

humanity – in relations with other people, time management is focused on «efficiency», which is much more important than the observance of «rituals». If communication with a person has gone beyond the established framework, but at the same time helps to establish a deep and full-fledged relationship, you should not feel guilty;

flexibility – plans are your servants, but not masters! Plans should be comfortable, consistent with habits, work style and criteria. If necessary, it is advisable to adjust the planned;

compactness – tools for planning and time control (for example, the organizer) should be as compact and convenient to work in any «field» conditions. Such portability will help not to lose any important idea, having fixed it in time [10].

The Covey time management system consists of two sections: strategic long-term planning and weekly short-term planning. Long-term planning unfolds in the following chain: the individual «mission» of the individual - the role - the goals. Short-term planning is presented as follows: actual roles - tasks - weekly plan - daily plan execution and delegation.

It can be determined that modern foreign time management is

characterized by three trends:

- 1) «humanization»;
- 2) differentiation;
- 3) computerization.

“Humanization” means the priority of individual time management, associated with personal growth and self-improvement, and, to a certain extent, the rejection of role and social time management. If role and social time management are a means of adapting a person to external time (the time of organizational and technological processes), then individual time management is aimed at comprehending and mastering his own internal time. The main aspect of inner time is personal self-determination: a clear understanding of one’s life values and a conscious choice of worthy and ambitious life goals. Thus, the humanization of time management means its psychologization – a serious rapprochement with the psychology of personal self-knowledge, development and self-improvement, with various spiritual practices.

Thus, if a strategic plan helps to clarify the desired goal, then competent time management will help maintain a useful ratio of the company.

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## **IMPLEMENTATION OF TRANSPORT AND LOGISTICS STRATEGY AS A NECESSARY COMPONENT OF SOLVING URGENT PROBLEMS OF REGIONAL DEVELOPMENT IN THE CONDITIONS OF POST-CONFLICT TRANSFORMATION**

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Today, the development and implementation of transport and logistics strategy is the prerogative of functional management and is a necessary component in solving urgent problems of regional development. State regional policy allows considering the composition of the subsystems of the region based on the theory of organization, can serve as a basis for a systematic analysis of the region depending on the scale of management, production capacity, population and marketing infrastructure. The basis of regional planning is a reasonable formation of its goals and criteria. The development strategy of the region should be based on the theory of program-target management and provide for setting strategic and tactical goals, as well as criteria for achieving them - quantitative indicators that determine the extent or composition of the assessment of the goal compared to other possible options for regional development.

Theoretical and methodological foundations of regional development management and strategy development in the system of state regional

policy are considered in the works of many domestic and foreign scientists, including Voronina V. E., Galgash R. A., Gridzhuk I., Dzyunzyuk V. B., Christenson K., Ovcharenko E. I., Semenenko I. M., Schumpeter J. and others.

Analysis of literature sources in the direction of [1-10] showed the presence of deep developments on the research topic.

It is necessary to strive for the most efficient use of available resources in the region for the most adequate adaptation to change. To achieve this, management should be focused on maintaining systemic balance, i.e. to appropriately allocate available financial resources in certain areas of production, economic and social activities. In general, the most important feature of the socio-economic system is to maintain a balance between technical, economic, social and environmental subsystems of regional development.

The social subsystem of regional development is the object of management; therefore, it must be considered as an independent system with its inherent connections and patterns. Therefore, when developing plans, it is necessary to take into account the indicators that characterize the state of the social subsystem of the region. As follows from the practice of management, at certain stages of development, social parameters can play a priority role.

Successful regional development planning is largely due to external factors that affect the functioning of the region. The group of external factors influencing the development of the region includes factors that are differentiated by the nature of origin: macroeconomics, mesoeconomics (related to the activities of industries, markets); microeconomic (determined by the behaviour of individual organizations).

The second group of factors (according to the way of influencing the region): network (influencing the region through partnerships of various kinds with well-known recipients); social («penetrated» into the region through the psychological characteristics of individual and group behaviour and interests, on the one hand, and related to the region groups - shareholders, bank managers, government officials, all stakeholders in the sustainable development of the region ) on the other ; environmental factors (determined by the socio-economic situation in the country, do not act selectively and do not have specific and permanent recipients).

The sectoral structure of the region is a fundamental factor that has a significant impact on all aspects of life in the region, and hence on the formation of its concept of socio-economic development. Of course, industry affiliation plays an important role in reflecting many parameters of the enterprise, but at the same time, it must be recognized that in matters of social activity of the enterprise and its evaluation by society, industry

affiliation is not so dominant. Society tends to compare enterprises not by industry, but primarily by social parameters, such as the degree of social protection of workers, the level of organization and remuneration, working conditions, the availability of social infrastructure, the threat to the environment and more.

Based on such interconnection, they should ensure the unity of the planning system and the correlation of plans with each other, which, in turn, should be ensured by common principles and methods of planning, as well as a single information base; it, in particular, should include the concept of socio-economic development of the country, priority areas of socio-economic development of individual industries and regions, a single system of indicators.

Strengthening the social orientation of regional transformations requires the formation of a new system of indicators, which will lead to the development of new forms, methods of calculation, a new statistical base. The new indicators will have to reflect new psychology of thinking, a new level of professionalism of managers of different levels of government, whose activities will be evaluated by society. Regional authorities cannot do without a strategically comprehensive program to address interrelated social development issues. It should determine the dynamics of key indicators [1].

In the context of hostilities in eastern Ukraine, since 2014, the state has been forced to change its policy on regional development. Considering regional development as an integral part should take into account local development. In the context of the conflict, the problems of regional development of Luhansk and Donetsk regions become very important every day and the main task of the state is to formulate policy in such a way as to ensure balance and effective use of unaccounted development potential of these problem regions. To solve one of the urgent problems of regional development of the Luhansk region, in the process of analysis, we identified the possibility of developing and implementing a transport and logistics strategy. On the balance of the department of development and maintenance of the road network of the region of the regional state administration, there are 146 regional roads and 470 districts with a length of 1731.9 km and 2216.1 km, respectively. The total length of public roads of local importance is 3948.0 km.

Restoration of road infrastructure and improvement of transport connections is carried out by the Regional target program of road construction in Luhansk region for 2016-2022, approved by the order of the head of the regional state administration - head of the regional military-civil administration from 06.04.2016 № 189 (as amended) [8].

In 2019, due to a subvention from the state budget to local budgets for financial support of construction, reconstruction, repair and maintenance

of local roads, streets and roads of communal property in settlements, 529843.19 thousand UAH were disbursed, including:

- overhaul of public roads of local significance - UAH 55,990.30 thousand, 5.5 km repaired;
- overhaul of streets and roads of communal property in settlements 80344.1 thousand UAH, repaired 98225 m<sup>2</sup>;
- current average repair of public roads of local significance - UAH 128,377.66 thousand, 19 km were repaired;
- current minor repairs, maintenance - 265131.11 thousand UAH [8].

In 2020, due to a subvention from the state budget to local budgets for financial support of construction, reconstruction, repair and maintenance of roads of local significance, streets and roads of communal property in settlements, funding in the amount of UAH 661,001.0 thousand is provided. including on:

- overhaul of public roads of local significance - 5000,0 thousand UAH,
- overhaul of streets and roads of communal property in settlements of 80 000,0 thousand UAH, it is planned to repair 13160,0 m<sup>2</sup>;
- current average repair of public roads of local significance - 443 801.0 thousand UAH, it is planned to repair 57.2 km;
- current minor repairs, maintenance - 132,200.0 thousand UAH [10].

In 2020, the construction of a complex for the shipment of grain on the railway transport of LLC «Golden Agro» will be completed.

100 t / hour, up to 25 thousand tons of single storage.

The redistribution of cargo turnover between modes of transport when using these specialized complexes will negatively affect the performance of freight transport by road. Introduction by the Resolution of the Cabinet of Ministers of Ukraine of 11.03.2020 № 211 «On prevention of the spread of acute respiratory disease COVID-19» on the territory of Ukraine ban on the carriage of passengers by rail, regular and irregular carriage of passengers by road in urban, suburban, intercity on city bus routes in the mode of a minibus, the restriction of the number of passengers on urban road and electric transport significantly affected the indicators in the field of passenger transportation (Fig. 1).

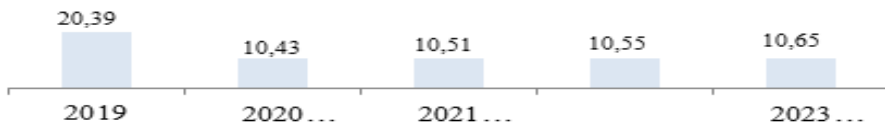


Fig. 1. Passenger traffic, million people

Source: generated by the authors according to the source [10]

Due to the unsatisfactory condition of the road surface and unregulated

logistics of road transport by road, there is an advantage for agricultural enterprises in the transportation of products of their production, the use of rail transport.

The general strategic goal of modern social policy is to improve the quality of life of the population, the implementation of which should be aimed at the activities of the entire system of public administration.

From the standpoint of a systems approach, the region as an object of strategic management can be considered in a set of interconnected subsystems:

- regional economy, which includes all the infrastructure that ensures the viability of the region;
- production sphere, which includes all branches of material production that produce the gross regional product;
- agro-industrial complex, which includes agriculture and forestry, territory and natural resources as a source of regional wealth;
- social sphere, which includes all areas of reproduction and spiritual development of the population of the region;
- financial and economic sphere, which provides macroeconomic proportions, financial relations of the region's industries in the form of the region's budget;
- the sphere of management, which includes a set of state and regional authorities in the region.

The calculation of the quality of life of the population determines the change in the standard of living of the population according to the main criteria. Choice of alternative development options. Depending on the state of the external environment (STEP-analysis) and the internal environment of the region (SWOT-analysis), as well as the list of basic competition strategies, several options for strategic development are formed. In strategic management it is necessary to give preference to consideration of three options of development of events:

- Pessimistic, when there is a deterioration of the socio-economic situation and quality of life, ie the main indicators change by 1-5% in the direction of deterioration compared to the baseline. Difficult economic situation in the region; budget problems do not allow for expanded production. It is advisable to apply strategies of «fire extinguishing», «retreat», «guerrilla warfare», «reduction» and «liquidation».

- Realistic, based on the stabilization of the socio-economic situation and quality of life, ie the main indicators change by 1-2% in the direction of improvement compared to the baseline. The region maintains its position at the achieved level, providing the necessary standard of living. To do this, apply strategies of «focusing», «differentiation», «harvesting», «retaliation», «defense and strengthening».

- Optimistic, when there is an improvement in the socio-economic situation and quality of life, the main indicators change by 3-5% to improve compared to the baseline, increases living standards, which allows for expanded reproduction, aggressive marketing policies, maintaining leadership in some sectors of the economy.

The forecast of socio-economic development provides a scientific justification for the prospects of social and economic development of the region based on management goals and forecast criteria for management subsystems by extrapolating the actual trends in the economy.

The initial data for the forecast are actual data on the development of economic sectors for the last 7-10 years of socio-economic development of the region, analysis of the regional budget; consolidated balance of labor resources in the region; assessment of prospects for the development of innovative sectors of the economy and leading enterprises in the region. Calculation of resource and investment needs. Based on the set strategic ideas of development and innovative projects, technical and economic calculations of the necessary resources (labour, material, technical, energy) are performed, and the calculation of financial resources determines the investment needs. The proposed strategies for the development of the region are necessary for making alternative management decisions to bring out the crisis of certain sectors of the economy, depending on the state of the environment and available resources. Regarding the possibilities of implementing the transport and logistics strategy in the Luhansk region, studies show that its implementation is essential and will solve the urgent problem of regional development in the field of transport and logistics, preserve road quality and create a competitive environment for business development and become the basis for state regional policy. Finding ways to better implement the strategy is also an ongoing process. In the context of post-conflict transformation, some strategic tasks are easy to solve, others are unsolvable. The implementation of the strategy is possible with the combined influence of the whole set of management decisions and many step-by-step actions performed by different target groups and individuals.

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## **FEATURES OF THE MODERN MARKET OF INFORMATION AND CONSULTING SERVICES**

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Improving the efficiency and competitiveness of agro-industrial production in the absence of a clear policy of agri-food development and insufficient funding and state support for the creation of material and

technical base, market, social infrastructure, lack of effective management and regulation, becomes possible only through fuller use of available efficiency reserves, including the most powerful internal reserve - the application of new knowledge embodied in innovations, innovations in the form of intensive technologies, organizational projects, introduction of new production functions, as well as various information about the market, which allows companies to respond reasonably and in a timely manner, to develop entrepreneurial activity.

Based on this, economic and management information reduces uncertainty in management decisions, which prevents losses or reduces losses, and therefore, information and consulting services are becoming the most important product in today's market, including for agri-food businesses. The agri-food sector needs not only resources (land, labor and capital), but also knowledge and information that can be considered a special kind of work. In the conditions of transfer of agriculture to an innovative way of development scientific and technical support in the form of information and consulting services is an important factor of efficiency of its functioning. The level of development of information and consulting services is a reliable indicator of the general state of the economy of agro-industrial production [1; 4].

In modern conditions in the agri-food sector, along with the market of resources, the market of information and consulting services is developing, which is a set of economic, legal and organizational relations for the purchase and sale of such services that arise between their suppliers and consumers in agriculture.

Experts offer two methodological approaches to the construction of classification features of consulting services, these services are usually distinguished depending on the method used (functional approach) and depending on the subject of consulting (industry approach)[7; 10]. Based on this, it is proposed to systematize the classification of consulting services on the most common two grounds - functional and substantive, which are presented in Fig. 1.

The subjects of this market are information and consulting services and agricultural producers of various forms of ownership and types of management. The object of the market, which the subject of sale or exchange, is information systems and technologies, consulting services.

Given the above, the main factors in the formation of supply and demand in the market under study, which determine the level of demand for information and consulting services, their price should include:

- market scale - in the largest agricultural regions there is a higher and stable level of demand for such services than in small or regions with a high level of urbanization;

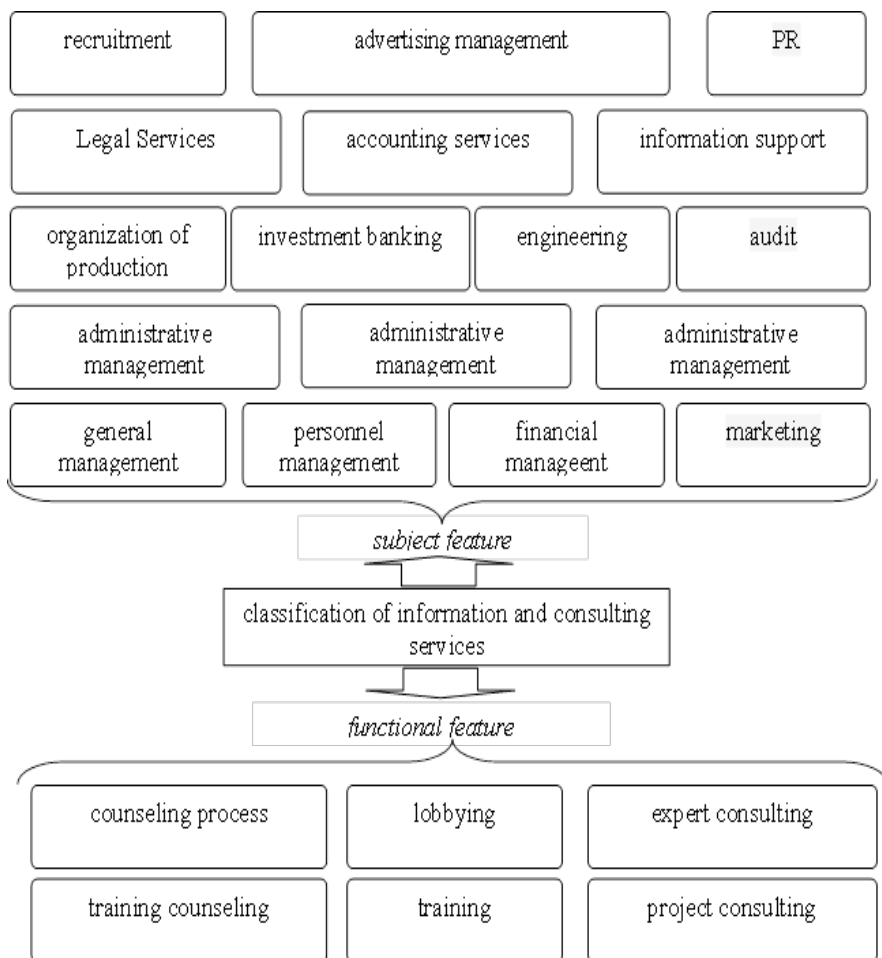


Fig. 1. Classification of information and consulting services [formed by the authors on the basis of 1; 4; 6; 9]

- the level of income of rural producers - as you know, with increasing income, the demand for these services increases;
- consumer preferences - in the absence of own funds, and in the absence of the possibility of obtaining long-term credit, the demand for services to improve production, optimize sales, increase efficiency increases compared to investment design services;
- competitive environment - the availability of services provided to other consulting services.
- instead, as the main factors of supply in the market of information and

consulting services, it is advisable to highlight;

- costs of providing services - the lower the unit costs, the more services can be provided by the service at a certain price level;
- savings in consulting costs, in turn, depend on the level of remuneration of qualified professionals, as well as on the prices of resources used;
- scientific and technical progress in the field of information technology is the use of new methods, forms, mechanisms, tools of research and consulting;
- the number of market participants (services, firms) is the achievement of the largest supply possible in conditions of perfect competition. At the same time, the existence of such perfect markets is impossible due to a number of objective reasons, including the need for licensing for the provision of relevant services, free advice to certain categories of customers by government services, etc .;
- state support and control is the participation of public authorities in the consultation process, increasing the availability of the main areas of counseling for broad categories of stakeholders, quality control of services provided [2; 5; 8].

The generalization of the forms of organization of various information and consulting services allowed to determine their main types, shown in Fig. 2.

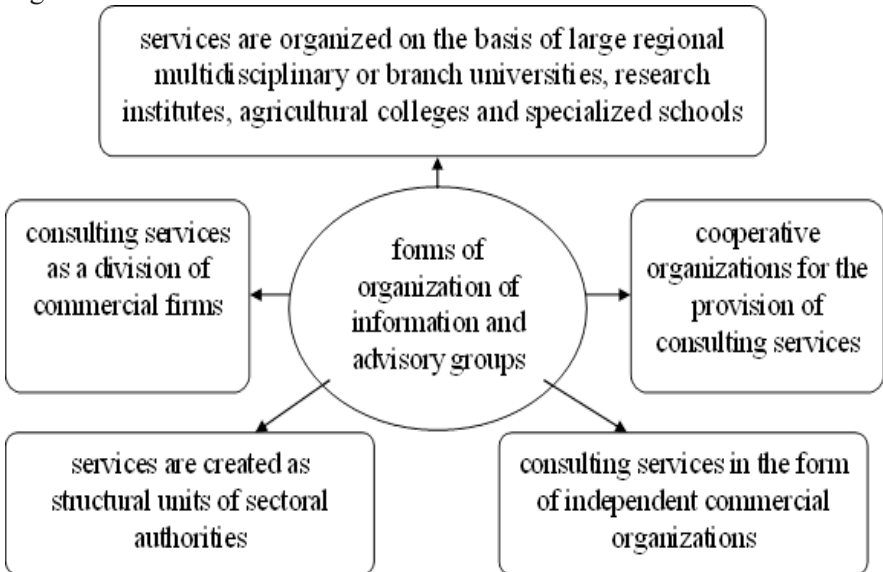


Fig. 2. The main types of forms of organization of information and consulting services are various [formed by the authors on the basis of 3; 4; 7; 9]

The specifics of information and consulting services in the field of agri-food take into account the objective features of the industry and the essence of the information and consulting process. At the heart of these differences, first of all, are natural and biological features that determine the technical and technological, organizational and socio-economic specifics. Therefore, for the progressive development of domestic agriculture it is necessary to solve the following most important tasks of an informational nature:

identification of areas of development that will allow the company to gain significant advantages over competitors;

development of fundamentally new approaches to conducting production and marketing activities that allow the business entity to strengthen market positions;

timely forecasting of market changes in the agricultural market and making operational management decisions.

Today the market of information and consulting services in many countries of the world is developing rapidly, however, in Ukraine its condition does not meet modern requirements in all aspects.

One of the factors that slows down the process of innovative development of the agri-food sector is the low level of technological equipment, while the world experience of agriculture is already directly related to information technology.

In recent years, information and consulting support for rural producers has become relevant again. The Ministry of Agrarian Policy and Food of Ukraine and other subjects of the agri-food sphere focused on the following areas of development of information and consulting activities:

- creation of an infocommunication system of the agri-food sphere, aimed at ensuring automated data exchange at all levels, as well as effective use of information technologies in the activities of regional and district management bodies of the agri-food sphere;

- creation of an automated information system that will integrate information support for the activities of state bodies in order to effectively implement the processes of management and regulation of agri-food markets. The tasks of such a system are: providing management and specialists with operational data on the results of assessment and analysis of situations, as well as information support for decision-making processes. It is based on modern technologies that allow for comprehensive informatization and automation of the agri-food authorities on the basis of centralized information resources, adaptive tools for data access, as well as service tools for their processing;

- creation of a system of remote monitoring of agricultural lands, which will allow to accurately assess the size of arable land in areas of intensive and risky agriculture, their productivity, identify negative soil processes, signs

of crop damage, pest distribution areas, as well as monitor emergencies; creating a system of information on the agri-food market to study the situation on agricultural products, products of processing industry, material and technical resources and services for the village, analysis and forecasting of agricultural and food markets, providing market information to agri-food authorities to regulate the market, support for producers, providing market participants with information on prices, sales and purchases of products, material and technical resources [1; 4; 9].

In modern conditions, when the growth of agricultural production is associated with difficulties, there is fierce competition among agricultural producers both within the country and between countries, mass bankruptcy, inefficiency of agribusiness entities, a special role is given to the information and advisory service of agricultural enterprises, and its main task should be to help solve the problems of rural producers through the integration of education, agricultural science in production, ensuring cooperation with organizations that influence the development of the agricultural sector.

Improving the efficiency of agricultural production is possible on the basis of making optimal management decisions, the introduction of new equipment and advanced technologies.

In this regard, one of the main functions of information and consulting activities in the field of agri-food should be the identification for the purposes of information and consulting services of completed scientific developments.

It should begin with the compilation of a register of developments and a description of their real significance. The evaluation of innovations is carried out according to several parameters, and the conclusion will contain a development passport. The ranking by importance of the list of developments with passports is entered into the database and becomes available to farmers.

The function of information and consulting services should also include the formation, updating and provision of commercial information to farmers about the markets, price monitoring, which is of interest to consumers who interact in the market space.

The formation of the reverse flow of information from farmers also occupies an important place in the work of information and consultation centers. One of the main tasks of information and consulting services is the process of summarizing the views and requests of primary producers in accordance with their problems.

An important function is also to provide assistance to farmers on their development strategy. Considerable attention in the activities of information and consultation centers should be paid to the educational function. This is primarily work in the framework of seminars, conferences, training courses,

farmers' self-education groups.

Note that it is possible to assess the effectiveness of consulting activities by the effectiveness of the implementation of a particular innovation. In addition, to increase the effectiveness of consulting activities requires the development of organizational and economic relations at the stages of creation of scientific knowledge and their implementation in economic activities, and information and consulting service should become a link between these stages [2; 6; 8; 9].

In the implementation of innovative activities in agriculture is necessary to delineate the areas of responsibility of different departments and levels of management of scientific activities, combining their efforts for the development of the agricultural sector, which will include:

- use of various types of stimulation of innovative activity (special risk insurance, exemption from certain types of taxes, direction of its modernization of production, etc.);
- training of qualified specialists for innovation activity;
- development of facilities with high scientific and production potential.

Thus, the formation of the market of information and consulting services for agriculture lies not so much in the plane of commercially attractive business, as in the plane of the need to implement and master innovations to increase the competitiveness of domestic agriculture.

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## **DEVELOPMENT MANAGEMENT AS A KEY ASPECT OF ACHIEVING SUSTAINABLE DEVELOPMENT GOALS**

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In today's economic environment, most countries of the world are in special operating conditions, determined both by globalisation influences and the dynamism of the external environment as a whole.

Despite the availability of a large volume of accessible information, international communication, active development of information technology, it is increasingly difficult to predict the future state of economic systems, due to the large number of factors that may affect their behaviour, such negative phenomena as financial, economic crises, leading to bankruptcy and deterioration of the socio-economic situation in the world are increasingly spreading.

The reasons for this are both global development trends, the most important of which today is progressive globalisation, and the specifics of the economic development of each individual country

The acceleration of technological development, the intensification of the role of human resources and changes in other factors of modern production

are interlinked with the problems of balance and dynamism

Therefore, every enterprise must adapt to these changes by improving its production programmes, logistics infrastructure, commercial and sales policies and by developing appropriate long-term strategies, among other things. The development of the enterprise is an important process on the way to this, because it is the main reason that enables an enterprise to enter a market or to maintain its position in existing markets.

Undoubtedly, a modern enterprise is a dynamic and open system whose activities depend on the conditions of the external environment in which it operates.

At present, the external environment of each business entity is characterised by the speed of change, which is difficult to predict. The task of each enterprise is primarily to maintain its current state and further improve it, since this is what ensures the competitiveness of the enterprise on the market. It is to this end that the activities of the enterprise should be aimed at creating the conditions for its continuous development.

In general, the category «development» characterizes qualitative changes in the enterprise, in particular, O. Kuzmin and O. Melnik interpret the concept of «development» as a process of transformation, transition from one qualitative-quantitative state to another, changes of the highest level [9, p. 36].

V. Andriyчук defines the category of «enterprise development» as the development, which is understood as irreversible, purposeful and natural changes in the economic system, the sequence of its transition from one state to another qualitatively on the basis of improving technology, technology and work organization, the introduction of innovations in management, etc. [1, p. 705].

Considering scientific approaches to the interpretation of the concept of «enterprise development», we see that a number of scientists interpret it as «... a unique process of transformation of an open system. as a unique process of transformation of an open system in space and time, which is characterized by a permanent change in the global objectives of its existence by forming a new dissipative structure and transferring it into a new attractor (one of the alternative trajectories of enterprise development) of operation» [6].

B. Vasilenko believes that «the development of the enterprise is not a one-time transformation to achieve «the best» (and therefore, eternal) state of the system, but a continuous process over time, the course of which is not always constant and continuous, most often going dynamically with overcoming various scales of crises» [3].

Enterprise development can take place according to different scenarios, results, timeframes, models and the like. Moreover, we agree with the

opinion of A. Kaplin who argues that the development of the system from the point of view of the modern scientific picture of the world is characterized by two levels of evolution: the first one characterized by stability, linearity and predictability and the second one characterized by instability and nonlinearity [7, p. 59].

That is, non-linearity, multivariability (alternativeness), stochasticity, unpredictability, constructive role of chaos (disorder), randomness in the emergence of the new become characteristic features of enterprise development in the current environment [4].

According to the laws of organization, they were first formulated by Oleksandr Bogdanov, who, as the founder of the modern theory of systems and organizations, noted that «an organized whole turns out to be ... practically greater than the mere sum of its parts ... Not because it has created new activities out of nothing, but because its existing activities connect more successfully than the supports opposing them» [2].

That is, development is an objective cause, not dependent on us. Development is an irrevocable, purposeful, regular change of matter and consciousness. Perhaps for this reason it is accepted to distinguish two forms of development:

- evolutionary;
- revolutionary (Fig. 1).

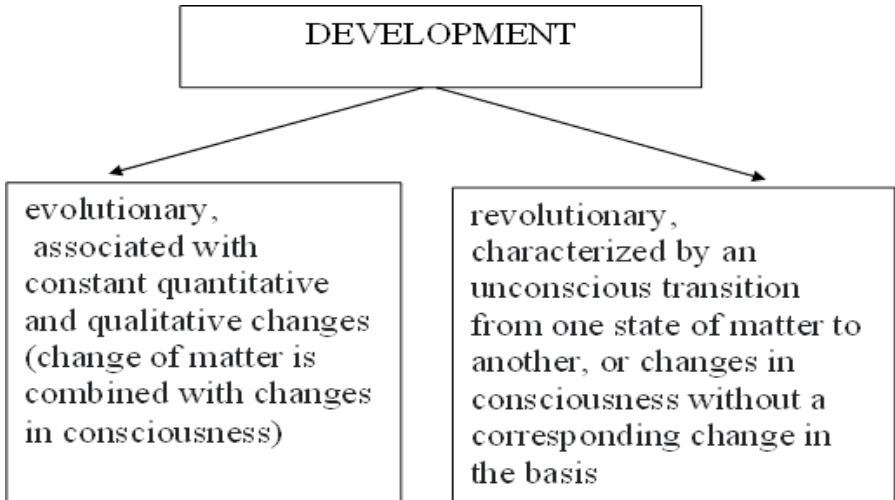


Fig. 1. Forms of development [3]

Let us consider the theories of enterprise development by different authors. Thus, according to the theory of directed development, the development of an enterprise is seen as individual and depends on its ability to adapt to

changes in the internal and external environment. The enterprise transitions from one state to another, reaching a state of equilibrium [1].

In the theory of cyclic development of the enterprise, the development of the enterprise is the result of cyclic development of world and national economies with declines and gains.

The adherents of the business cycle theory consider the development of the enterprise, which goes through a certain life cycle, for which the following stages are implied: generation, growth, stabilization and decline.

In the «business is visible» theory, development will cease if economic resources are highly concentrated on current activities, which will lead to underfinancing in the future.

The theory of «foregone development». Development will come to a halt if economic resources are severely limited in the future, thus contributing to underinvestment in the current period.

In the «negotiable» theory of development of the enterprise is located between the decline, not identified prospects for development.

The theory of «generating ideas in the absence of new business». Development will come to a halt if the development ideas cannot be absorbed by the managers.

However, the prevailing theory of development in most countries is the old growth theory. According to V. Tregobchuk, «the concept of sustainable economic development is recognized by the world community as a dominant ideology of human civilization development in the XXI century, a strategic orientation for ensuring material, social and spiritual progress of the society» [12, p. 31].

It should be noted that Ukraine has recognized the concept of sustainable development as a priority and adopted the National Strategy for Sustainable Development, which is based on the need for balance between welfare, society and the economy. According to scholars, «steel development is development which satisfies the needs of the present without compromising the ability of future generations to satisfy their own needs» [5].

The issue of sustainable development was first announced in 1992 at the UN Conference on the Environment and Development in Rio de Janeiro, where representatives of 179 countries adopted the program of economic and social development of humanity in the future century, formulated in the document «The order of the day in the XXI century».

This programme was based on the concept of sustainable development, which called for «modification of the biosphere and the use of human, financial, living and non-living resources to meet human needs and improve the quality of life» [11].

In 2002, the World Summit on Sustainable Development in Johannesburg adopted the «Plan of Implementation at the Highest Level» which identified

specific actions and their implementation timeframes [10].

Thus, our country joined the world's countries which undertook the obligation to ensure steel development in line with the global Steel Development Goals. The country developed and in the spring of 2017 grabbed the National Development Goals Outline: Ukraine. This document identifies 86 development objectives and 172 benchmarks for achieving the Millennium Development Goals, taking into account the peculiarities of national development.

It is clear that a necessary condition for achieving the Millennium Development Goals is the existence of a well-developed national institutional structure of steel development management. That is why we agree with the opinion of experts on the positive practice of identifying national authorities responsible for the goals of steel development and establishing statistical observations in this area, Introducing a real system of monitoring and control, including parliamentary control over the activities of the government to achieve the Millennium Development Goals, and involving all sectors of society in this process.

The main source of development is the basic economic inequality is satisfaction of unnecessary needs under conditions of limited resources [1, p. 705].

So, the mechanism of enterprise development depends on the economic potential of the enterprise on the one hand and the satisfaction of the unmet needs of society in goods and services, which the enterprise provides to it in exchange for the ability to obtain profits – on the other hand.

Thus, the economic potential is seen as a totality of available and due to mobilization of the basic sources, assets of the enterprise, elements of the potential of an integral economic system which are used and can be used for economic growth and socio-economic progress [13].

The basic theory of development of the vast majority of the countries of the world is the theory of old growth. Ukraine has also prioritized the concept of sustainable development and adopted the National Strategy for Sustainable Development, which is based on the need for balance between welfare, society and the economy [14]. The concept of sustainable development requires a new approach to solving global and state organization problems, which requires substantial changes in all spheres of social life and, in particular, the development and functioning of enterprises. Ukraine has formulated a framework for ensuring sustainable development in line with the global goals of sustainable development.

National targets for sustainable development and national indicators of achieving the Sustainable Development Goals have been identified, most of which are subject to quantitative measurement; The framework for monitoring in this area has been established; tasks have been set to bring the

country's social and economic development strategies and plans in line with the Millennium Development Goals.

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## **FUNDAMENTAL GROUNDS OF SOCIOECONOMIC SECURITY EVALUATION WITHIN AN URBAN GEO SYSTEM**

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Ongoing development of economic security studies has led to the detection of new types and objects of economic security. Along with such categories of economic security studies as “economic security [of an object]” and “social security [of an object]” recently experts in the field have started to operationalize the category of “socioeconomic security” [of an object]. This category is universal in nature as it can be applied to absolutely all elements of the state socioeconomic system. Specification of objects in socioeconomic security can be carried out through determination of elements within this system.

One of these objects of socioeconomic security is a city (as an urban geo system), and research on this direction of economic security studies has only started to emerge and develop.

From the standpoint of the system approach, a city is a complex, managed, open socioeconomic system, and also an urban geo system, which is capable of self-organization and self-regulation by means of social interaction between its elements. Besides that, this system is also dissipative in nature, with a range of unbalanced processes within it. Urban geo system as the basis of a city system also has a complex structure and its own list of functions. It is extremely sensitive to the influences of the external environment, and its functioning often causes a range of accompanying problems. All of the above determines the necessity to consider it as an object of socioeconomic security.

Within the subject matter of the economic security studies on urban geo systems there are two interrelated directions — evaluation and provision of the socioeconomic security of a city. Its evaluation along with other components (resources, quality of management, implementation of approved decisions, quality of elements’ interaction within the urban geo system, its potential, etc.) together serve as the basis for provision of socioeconomic security of a city.

Evaluation as a separate direction in economic security studies of the macro-, meso- and microlevels has already received quite a lot of attention.

However, the same cannot be said about the evaluation of socioeconomic security on the level of urban geo systems.

Several approaches can be used for evaluation of socioeconomic security of the urban geo system, namely:

- objective - when actual or modelled quantitative indicators are used for evaluation;
- subjective - opinions of the representatives of various social groups within a city are used for evaluation, along with the opinions of entrepreneurs, public servants and so on. These opinions are collected using various tools, including sociological surveys dedicated to different topics;
- mixed - elements of both objective and subjective approaches are combined under this one.

As a rule, evaluation is most precise under the objective approach. However, for its application, the choice of specific indicators needs to be thoroughly grounded. This grounding of specific indicators to be used directly predetermines the reliability of socioeconomic security evaluation at the urban geo system level. In the absolute majority of cases, evaluation of economic or socioeconomic security of a specific object does not include such grounding of the indicators used, or this grounding is poor and unconvincing.

Lack or poor grounding in the selection of indicators to be used for evaluation of economic or socioeconomic security of a certain object was for the first time revealed in [1], and this fact is a serious bottleneck in the evaluation methodology of the economic security studies.

Another logical assumption has been put forward in [2]: evaluation of economic security on an object level should be based on the indicators that describe the key constructs quantitatively, thus revealing the contents of the category under evaluation. This assumption has become the basis for the suggested in [2] construct approach to economic security evaluation at the state level. This approach can be also adapted for the purposes of socioeconomic security evaluation at the level of an urban geo system.

We find it feasible to present the fundamental grounds of socioeconomic security evaluation at the urban geo system level using the construct approach as presented in [2]. The operational logic of this evaluation is presented in Fig. 1.

Socioeconomic security is a synthetic category which has both economic and social components. However, it would not be appropriate to consider the category “socioeconomic security of an urban geo system” is an automated combination of the two categories - “social security of an urban geo system” and “economic security of an urban geo system”. Socioeconomic security of an urban geo system has emerged on the edges between these two categories, however, not as a result of their merger. As described in [3], it reveals the

mutual conditionality, interdependence and complementarity of the relations that are being formed in the process of interaction between economic and social security of a city.

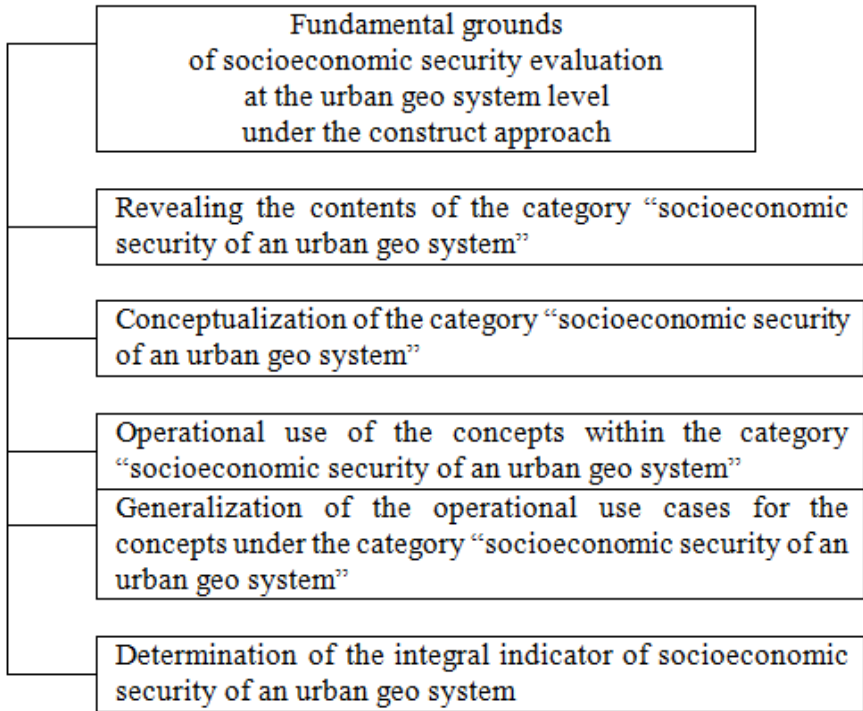


Fig. 1. Fundamental grounds of socioeconomic security evaluation at the urban geo system level under the construct approach

Following M. Weber, the presented here contents of the category “socioeconomic security of an urban geo system” is “inactive” [4, p. 132]. In the terminology of Weber, to understand the “active”, we need to simplify the determination, that is, to conceptualize it, and then, to make the concepts operational, thus making specific indicators under observations out of them. This would allow collecting data on socioeconomic security of an urban geo system, thus enabling an explanatory observation about it.

Conceptualization of the category “socioeconomic security of an urban geo system” is necessary because the category in question is multifaceted and therefore complex. Concepts within this category are its subcategories. They specify various preconditions present in the contents of the category. These preconditions provide satisfaction of the population with their residence and activities within a city as well as adherence of their interests and rights under

the well-balanced interests of all elements within the urban geo system. For this, the urban geo system would need to demonstrate efficient use of its potential, security-oriented management and effective communications established between state authorities, city authorities, population and local businesses.

Concepts within the category “socioeconomic security of an urban geo system” can be also understood as specific aspects in understanding of this category. Considering several concepts in their interrelations, interdependence and mutual influence on each other would guarantee adequate presentation of the phenomenon in question — the socioeconomic security of an urban geo system.

The concepts under the category “socioeconomic security of an urban geo system” are as follows:

- population satisfaction with the residence and activities within a city;
- safeguarding the interests and rights of a city residents;
- balancing the interests of various elements of an urban geo system.

These concepts under the category “socioeconomic security of an urban geo system” must be fully operational. This would allow assigning each concept its own operand which is a specific indicator under observation. This, in turn, would allow taking the next step - moving from purely theoretical constructs to specific instruments of evaluation.

Calculating the integral indicator of the socioeconomic security of an urban geo system would require carrying out calculation operations with the operands of the concepts within this category.

At first glance, implementation of the suggested here algorithm of socioeconomic security evaluation for an urban geo system should not have much complications, as it was the case in [1] (where secure state of a region has its features, subfeatures and the indicators of these subfeatures) or as in [2] (where contents of the notion “state economic security” was revealed through constructs and the indicators of these constructs). Using the suggested here algorithm for evaluation of socioeconomic security of an urban geo system should not have been complicated if it wasn’t for the multisubjective nature of this evaluation. This multisubjective nature is especially explicit for the key concept under the category “socioeconomic security of an urban geo system” - population satisfaction with the residence and activities in a city.

Overall, satisfaction of population needs in residence and activities in a city is usually determined through the quality of urban environment. The latter, in its turn, determines the level of comfort when it comes to residence and population activities and also satisfaction of various individual needs.

The Encyclopedia of Contemporary Ukraine defines urban environment as a combination of natural and artificially created material environment

which emerged due to the influence of urbanization processes on the natural environment [5]. Thus, human livelihood is always in interaction with the urban environment. At the same time, despite all the interrelations, the notions of “urban environment quality” and “population’s life quality” are not exactly the same.

Despite all the popularity of the notion “urban environment quality”, there is no commonly acknowledged definition of this notion. Thus, we suggest to consider urban environment quality as a degree to which various elements of an urban geo system are adequate to the needs and requests of the local population, including those of comfortable residence and having various types of economic activity. The human chooses a city with more affordable residence options and more employment opportunities (or higher chances to start an own business), a city with high quality of services (including healthcare which becomes vitally important considering the current pandemic situation), a city with opportunities to get good-quality education and wide leisure options.

To describe the quality of an urban environment it would be feasible to use the operands that characterize the material side of life (income, consumption), the state of health, education, personal activities (including employment), social interactions and relations, natural environment (as of today and in the future), physical security. These operands have been selected on the basis of the Report by the Commission on the Measurement of Economic Performance and Social Progress by J.E. Stiglitz, A. Sen and J.-P. Fitoussi [6, p. 14].

It would be obviously hard to select those operands that describe the satisfaction of all population groups with the residence and urban activities in an unambiguous way. Population of any city is divided into groups, the most obvious of which are groups by age and those by professional activity (employed people, business owners, public servants and so on). This division leads us logically to the key feature of the concept “population satisfaction with residence and activities within a city” - its subjectivity. Satisfaction of needs as well as safeguarding of the interests and rights assumes the existence of at least three generalized subjects within a city - population, economic agents (business units) and public authorities.

This subjectivity of the key concept within the category “socioeconomic security of an urban geo system” makes evaluation of socioeconomic security of an urban geo system also multisided, thus also covering three generalized subjects within a city. Further specification of those three subjects would narrow down the subjects (for example, the youth, the retired, small and large businesses). In turn, a rank in evaluation of socioeconomic security in an urban geo system would predetermine the choice of a concept’s operands.

It is obvious that the operands of the urban environment quality for each

subject of the socioeconomic security evaluation within an urban geo system would be different. The very problem of operands dominates the picture here, and its solution could be achieved by means of P. Unger's contextual approach [7].

P. Unger was convinced that for some questions there can't be objective answers as such. An answer to a question is always predetermined by a combination of preconditions the researcher is stemming from. This idea is explicitly manifested in any evaluation overall and in evaluation of the socioeconomic security of an urban geo system in particular. We would like to demonstrate differences in the standpoints of evaluators on the example of such an important element of any urban environment as the quality of communal services.

Residents of large cities in Ukraine are justly evaluating the quality of local communal services as being average or even poor. Such negativity in evaluations is caused primarily by the mismatch between the quality of these services on the one hand and their price on the other. Other reasons include: frequent breakdowns and delays in repairs of the water supply and water disposal systems; same applies to heating and electricity systems; unsatisfactory maintenance and servicing of the communal housing; not to mention the nearly non-existent energy-saving initiatives. Same non-existent is the renovation of the housing sector, while elevators in many houses (put into service long before 2000) are in their limit, pre-crash state. Thus, from the standpoint of urban residents, such an unsatisfactory quality of the communal services can be treated as a direct threat to the level of population satisfaction with the residence and activities in a city as well as a threat to their interests and rights.

However, in parallel to such low assessments of the communal services' quality on the side of local residents, the same residents often do not fulfil their obligation of paying, timely and in full, for these services.

In early days of March 2021 Ukrainian analytical agency Opendatabot published the statistics on the growth of population debts as delayed payments for the communal services. This statistics confirms that the largest share of these population debts falls on the heating supply enterprises. At the end of December 2020 population debts on communal services payments reached 73.6 bln UAH. The monthly growth of debt amounted to 7.5 bln since just one month earlier it was at the level of 66.1 bln UAH [8]. At the beginning of 2021 population debt on communal services payments was at the level of 80 bln UAH already.

Enterprises providing housing & communal services state that the unsatisfactory quality of these services is predetermined by the debts size. However, as it is demonstrated in [9], efficiency of the housing sector and of the communal services is not entirely in the direct dependence from the

amount of financing from the local budgets. Other important factors include: readiness of the local authorities to approve the unpopular decisions and to raise tariffs so that to make the prices for communal services economically well grounded; overall quality of the administrative decisions concerning communal services organization; efficient control over communal services provision.

Therefore, differences in the standpoints of evaluation subjects lead to application of different operands in relation to the quality of communal services provision. Similar differences in standpoints can be also observed in relation to other components of the urban environment quality, including healthcare, education and urban transport.

Thus, evaluation of the socioeconomic security of an urban geo system is essentially much more complex than evaluation of economic security at an enterprise level or evaluation of regional socioeconomic security. This complexity is primarily caused by differences in the standpoints of various subjects involved in this evaluation. The complexity, in its turn, requires a thorough and detailed description of all the interests on the side of all the subjects involved in evaluation. Such a description of interests will help with the selection of operands for further operational use of the concepts which specify the contents of the category “socioeconomic security of an urban geo system”.

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## **PART 2. CHALLENGES AND THREATS TO ECONOMIC SECURITY UNDER THE TRANSFORMATION OF NATIONAL AND TRANSNATIONAL RELATIONS**

### **DIAGNOSIS OF ECONOMIC STABILITY IN THE PROCESS OF OPTIMIZING THE FINANCIAL CONDITION OF AN ENTERPRISE**

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In connection with the rapid pace of transformation of the domestic economy, the integration of financial markets, the constant intensification of competition, domestic business entities of any organizational and legal form of ownership have to neutralize the negative effect of internal and external factors, as well as minimize financial and economic risks. To neutralize and minimize them, as well as to improve the economic efficiency of enterprises, it is necessary to control the financial and economic environment. Such control is possible only when making a comprehensive analysis of the property, capital, and financial results, as well as finding reserves to improve the financial condition of an enterprise, which is practicable with the use of an effective model of financial diagnosis of an enterprise. In the fact, financial diagnosis provides an opportunity to more accurately assess the financial condition of an enterprise and predict management decisions that will help optimize the overall performance of the entity: profitability, financial stability, liquidity, business activity, etc.

Before analyzing the etymological foundations of the concept and essence of «diagnosis of economic stability of an enterprise» it is advisable to define the concept of «diagnosis» and «economic stability of an enterprise».

The research of the scientific understanding of the category of «diagnosis» in economics suggests that to date there is no single interpretation of this concept. The versatility of the definition lies in the individual vision by economists – diagnosis is identified with:

- search, analysis, detection of possible errors, and development of ways to improve system management [6];
- determining the state of the object, subject, phenomenon, or management process, identifying weaknesses and «bottlenecks» in them [8];
- analysis of the value and ratio of criteria (indicators) of an enterprise, market, and institutional environment, taking into account changes in ratios

to determine: the causes of problems and hierarchical levels of systems (the level of the function performed, structure or parameters [9 ];

- stage of the decision-making process based on the analysis of cause-effect relations [5];

- research activities aimed at identifying, analyzing, and evaluating the problems of improving the efficiency of the management system of an organization and identifying key directions for their solution [4];

- assessment of economic parameters of enterprise operation by studying individual indicators, the availability of incomplete information to find possible prospects for the development of an enterprise, and the consequences associated with current management decision-making [8].

Accordingly, in this study, it is proposed to define diagnosis as analysis and establishment of the nature of violations in the everyday course of economic processes on the basis of typical features that are specific to such a violation, as well as preventing them to bring the system into operation. It is with the diagnosis of a problem that its solution begins. Diagnosis of the object in the research determines the state in which the object is and identifies problem areas that slow down the development in the present and the future (Fig. 1).

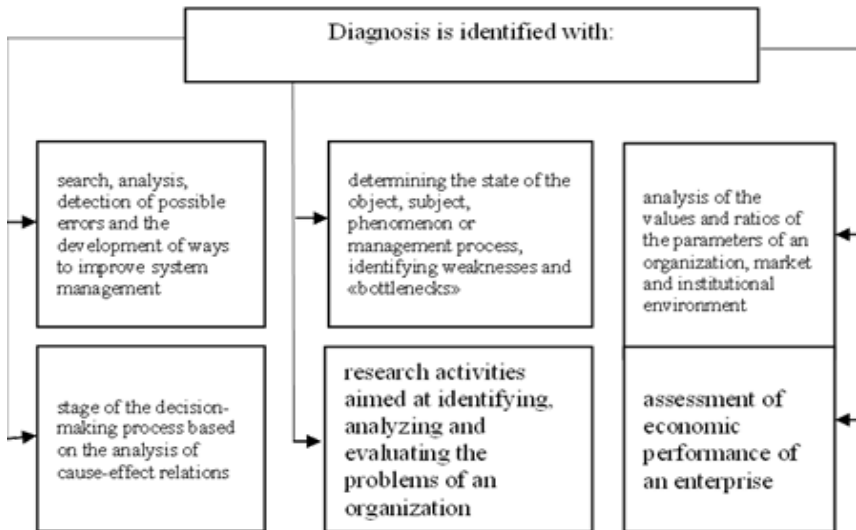


Fig. 1. Characteristics of the concept of «diagnosis» [developed on the basis of 8]

Based on the provisions of the current legislation of Ukraine, the definition of the financial condition of an enterprise is interpreted as a set of

parameters that show the availability, location, and level of resource use by an enterprise, as well as the actual and potential financial capabilities of an enterprise [4].

Salyha S. Ya. characterizes the financial condition of an enterprise as an economic category that reflects the state of capital during its cycle and the ability of the business entity to self-development in a certain period of time [7]. Summarizing the ideas of the authors concerning the concept of diagnosis of the financial condition of an enterprise, it is worth noting that the purpose of diagnosis should be a comprehensive analysis, which will promote meeting the needs of internal and external users, and its results can be the effectiveness of the business entity activities, changes in the financial and economic condition.

The proposed mechanism for diagnosing the financial condition of an enterprise makes it possible:

firstly, to react in time to the change of factors of the external and internal environment of an enterprise;

secondly, to reduce the impact of risk arising from uncertainty;

thirdly – the ability to make rational management decisions.

It is possible to reduce outgoing cash flows through:

- reduction of costs that are included in the cost of products;
- reduction of costs that cover the company's profits.

Improving the financial condition of an enterprise can be achieved by ensuring the growth of incoming and reducing outgoing cash flows. Increasing the size of incoming cash flows can be achieved through:

- increase in revenues from sales of goods and services;
- selling the share of fixed assets;
- refinancing of receivables [9, p. 135].

The first step in improving the financial condition of domestic enterprises should be to search for the optimal ratio of equity and debt capital, which would ensure a minimal financial risk with maximum return on equity. Conducting the optimization of liquidity of an enterprise can be realized through the operational mechanism of financial stabilization – using a system of measures aimed at reducing financial liabilities and the growth of monetary assets that provide these liabilities [7, p. 53].

The main direction of improving the financial situation is the growth of sales revenue. And the sales revenue and its size depend on the number of sold products and what is set per unit of sold products [9, p. 134].

It is also reasonable to pay attention to the fact that to improve the financial condition, producers of goods and services have to sell all products stored in warehouses.

The analysis of the developments of national and foreign authors on the purpose, objectives, process, methods, techniques, tools, results of the

diagnosis of financial situation, their generalization made it possible to form a mechanism for diagnosing the financial condition, which, according to the authors, is complex and corresponds to transformational dynamic conditions of domestic business entities.

The most important factor in the sustainability and development of an enterprise is to forecast the state of its finance because to properly manage production, one should also constantly use information about its condition and changes that occur.

Besides, measures to maintain the financial condition at a sufficiently high level may be:

- constant monitoring of the external and internal environment of an enterprise;
- development of measures to reduce the external vulnerability of an enterprise;
- development of action plans in case of problematic situations, implementation of preventive measures;
- introduction of plans for practical measures in the event of a crisis, making risky and non-standard decisions;
- coordination of actions of all participants and control over the implementation of measures and their results [3, p. 278];
- calculation of forecast values of product sales (sales plans) and investment plans, product cost, etc.;
- identification of sources aimed at financing economic activities, as well as budget financing, long-term, and short-term lending, etc.;
- coordination of financial divisions of an enterprise [1, p. 83];
- aggregate measures associated with changes in the structure and components of on-balance-sheet assets;
- transferring tangible and financial assets that are available at an enterprise to the monetary form [3, p. 279].

It is found out that the state of enterprise finance is the result of the mutual influence of all components of the financial relations system of an enterprise; it is characterized by a set of production and economic factors and is determined by a system of indicators that reflect the state, availability, location, and use of financial resources.

It is expedient to generalize the basic directions for optimizing the finance condition of domestic enterprises (Fig. 2).

Characterizing the financial and economic activities of domestic business entities, the following aspects should be noted: the growing role of timely and thorough analysis of the financial condition, liquidity assessment, identifying solvency and economic stability, as well as search for ways to improve and strengthen financial stability. It is important to objectively assess the potential for profit growth of an enterprise.

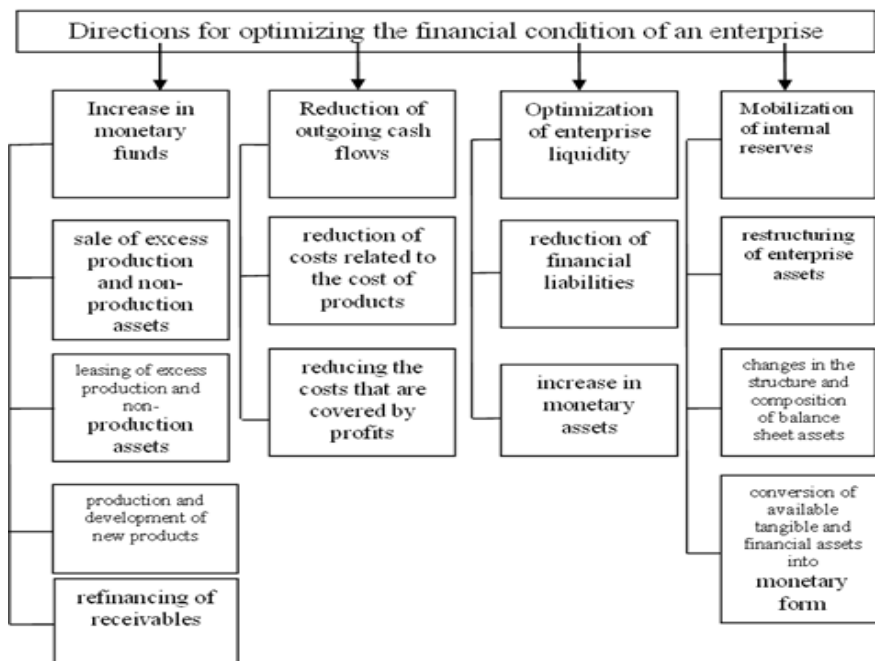


Fig. 2. Directions for optimizing the financial condition of an enterprise [developed on the basis of 1, 2, 4, 6]

During the research, the main measures were identified, their implementation will improve the financial condition of enterprises. The main task of the head of an enterprise is to increase revenue and reduce costs. Therefore, for providing financial stability it is necessary not only to eliminate the deformations caused by shortcomings of economic activity of enterprises and miscalculations of economic policy but also to create conditions for strengthening the finances of enterprises by introducing modern mechanisms for diagnosing the financial condition.

Having determined the economic essence and importance of diagnosing the financial condition of an enterprise, it is expedient to study the information base for diagnosing the financial condition of business entities.

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## **COMPETITIVE STRATEGIES FOR LAND MANAGEMENT BASED ON DECENTRALIZATION, EUROPEAN PRACTICE OF RESOURCE CONSERVATION AND ENVIRONMENTAL INNOVATION**

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Land relations as an integral part of production relations occupy a special place in social production and require purposeful coordination of actions, adequate forms of land ownership, forms of land management and land

use in all sectors of the economy. Based on this, land use, and in a broad sense - land resources, requires focused management. Land management is a process of continuous improvement of land relations, land use and land tenure, land management and land management of farms, optimization of land distribution between branches of the economic complex and rationalization of their use in each of them, development and implementation of land protection measures and productivity. economic efficiency of use.

Management of land resources in Ukraine is carried out by regulating land relations through regulations, ensuring the requirements of land legislation, systematic control over the use and protection of land, the use of means of influencing violators of this legislation. Thus, the functions of state regulation of land relations are the functions of state management of land resources. Successful implementation of public administration and regulation requires an objective analysis of the characteristics of the land fund, trends in its use. The hierarchy of the structure of rational land management in Ukraine is quite complex and multifaceted. Depending on the powers, structure, purpose and tasks of state bodies in the field of land management, the following forms of management can be distinguished as a general, special and regional.

Expanding the essence of land management in market conditions, it can be noted that these are the processes of registration and dissemination of information on land ownership, value and use of land and related resources [2]. Such processes include the definition of land rights and land boundaries in relation to land management, detailed confirmation by appropriate documents and the provision of relevant information necessary for the functioning of the circulation of land. He later noted that the main problem of organizing a land management system that meets the requirements of transition economies is the lack of appropriate scientific base, including a lack of knowledge about the rational scale of state intervention in the allocation, use and restoration of land resources, effective mechanisms for combining administrative and market ways to regulate these processes, optimal organizational structures and forms of management [11]. The development of management as a specific type of activity, the growth of its role, the constant expansion of the network of governing bodies is a natural expression of socio-historical progress. Without it, there can be not only processes of production, but also exchange, distribution, consumption, service, finance and all the communication channels through which these processes are carried out. A wide range of management tasks is solved by state, local and internal economic management. In turn, public administration is divided into general and departmental (sectoral).

General public administration is carried out by state bodies of general and

special competence and has a territorial (regional) character. It applies to all lands within a certain territory (Ukraine as a whole, region, administrative district, city), regardless of the category of land and the subjects of land rights. Departmental (sectoral) land management is performed by ministries, committees, services on the principle of jurisdiction of enterprises, organizations to which land is provided, and does not depend on its territorial location. Local government belongs to the competence of local governments and can be both general and special. Internal management of land is carried out by owners and users of land [3; 7].

Land management is complex, as it affects the interests of many subjects of land relations, which requires a systematic approach to managing the use and protection of land resources, coordination of organizational and technological solutions with possible environmental and economic consequences. Management functions are performed by legislative, executive authorities and local governments, which regulate land relations, determine the overall strategy for the development of land tenure and land use, lawmaking, law enforcement, etc. The content of executive and administrative bodies for land management is forecasting and planning their use; establishing norms and procedures for land tenure, land use, distribution and redistribution of land; operational and administrative, regulatory and control activities for the use and protection of land. The basis of the processes that take place in the land management system is a continuous information exchange.

The means of ensuring this exchange are land management, land cadastre and land monitoring. Land management is a set of relationships between elements of the management system aimed at the rational use of these resources [4]. The nature of the land management system has changed over several epochs in accordance with the economic basis, goals and criteria of social order. In any social system of government performed two functions: ensuring the national interests and the interests of individual members of society (or their groups). New land relations and economic conditions have formed a new management system, the main characteristics of which are: a sharp transition from administrative-planning to market-entrepreneurial model; delimitation of functions and subjects of state and non-state administration; development of processes of democratization of public relations; integration of Ukraine into the world information and technological process; unification of political, social and socio-economic processes. Land management in market conditions is a system of interrelated economic, legal, organizational, political and other measures by which the state influences the interests of various participants in land relations in order to organize the rational use of land resources and their protection. The organization of land use management is one of the most important state

tasks.

The mechanism of such management can be represented as an organic combination of three inherent aspects - legislative, economic and environmental support. Considering these components in the relationship, special attention should be paid to the formation of an effective system of economic levers - the most effective and complex method of influence in the field of land management. The economic essence of land management in market conditions, in our opinion, is to justify the measures taken as the implementation of land policy of the state and aimed at improving the efficiency of land use as an economic resource. Among the many areas of land reform can be identified as follows: the distribution of land by type and form of ownership, purpose, as well as sustainability of land use as an object of management; establishment of appropriate land use regimes; formation of land use structure on the basis of diversity.

The strategic goal of state policy in the field of land management, reform and regulation of land relations as an integral part of state socio-economic policy is to provide conditions for efficient land use and land market development as one of the key conditions for sustainable economic development. citizens. The existing system of land management is more pronounced administrative, control nature. Its functioning is carried out mainly by the distribution of executive power vertically, which is far from complete [5; 8; 10].

Horizontally, the improvement of land legislation and the implementation of powers in the field of land use and protection takes place in three directions in accordance with the composition of land and environmental regulations, which are grouped as follows: own environmental or environmental legislation; natural resource legislation, including land; other areas of legislation that regulate relations arising in the process of land use and protection - civil, administrative, financial, etc. In the modern conditions of reforming land relations, the inclusion of land in the sphere of trade becomes obvious the need to introduce a more effective management mechanism based on economic methods of influence.

The main elements of the economic mechanism include: the establishment of differentiated land payments; economic stimulation of rational land tenure and land use, application of economic sanctions for mismanagement of land, reduction of soil fertility; economic protection against the seizure of agricultural land for other purposes (industry, transport, etc.); credit, financial and investment policy of the state. It should be noted that currently the differentiation of land fees does not adequately reflect the differences in the location and fertility of land plots, even within one district, and does not take into account the contribution of landowners in improving land use. Free use of land has had a negative impact on quality and has been one of

the reasons for the deterioration and low efficiency of land use. In general, the economic mechanism of land management has the form of a system of management methods: economic incentives, economic guarantees and economic sanctions [1, 6, 9].

In order to economically stimulate the rational use of land, owners and users should be able to temporarily be exempt from paying for land, receive benefits for the payment of land tax. The state or local authorities may allocate budget allocations for the restoration or reclamation of land, monetary compensation for their temporary conservation, set higher prices for environmentally friendly products, encourage owners to improve soil quality, increase their fertility, productivity of forest lands. An important block in the methods of economic regulation of land relations are economic sanctions applied for offenses in the form of various monetary compensations related to compensation for damage. Fines are often used in practice as a measure to influence violators of land law. Penalties (up to the withdrawal of the allocated land plot) are established for loss of soil fertility, development of erosion, violation of land and environmental legislation. The main purpose of the pollution payment system should be to influence the economic behavior of economic entities, rather than penalties for non-compliance with pollution standards.

In the current system of management, payments for pollution are a way to mitigate the negative effects of economic activity and perform primarily the function of accumulation of funds within environmental funds. This is, of course, a very important function, especially in the context of a sharp reduction in budget funding for environmental activities, but in the long run should increase the incentive role of this type of payment. To this end, it is necessary to solve the following problems of a methodological nature: to take into account the role of the enterprise in the socio-economic situation of the region and its economic condition; the size of the rates should be related to the possible costs of measures to reduce pollution (for example, the cost of environmental equipment, taking into account the payback period, etc.). The main criterion for establishing the amount of payments should be the degree of response of the enterprise to market signals aimed at changing the cost of production due to these payments; the amount of payments should depend on the type and structure of pollution and the environmental situation of the territory in which the enterprise is located.

Incentive payments can have several purposes, such as minimizing waste, encouraging the reduction of waste-generating products, stimulating the production of substitutes, etc. The pollution payment system should focus on the end results and be interlinked with overall economic development priorities.

Thus, in our opinion, land management should be understood as a

systematic, purposeful action of the state and society on land relations and land use. This action should be based on knowledge of objective laws and information in order to ensure the effective functioning of land resources of the country as a whole, regions and specific territories. The concept of "land management" in modern conditions is changing and improving. This is due to changes in the content of land relations and the implementation of land reform. Since the main issues of reform are diversified land use and parity development of various forms of ownership of agricultural land, public land management is to form a mechanism of rational land use, which would influence the behavior of land relations and ensure effective functioning in specific natural conditions.

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## **INNOVATION AND INVESTMENT APPROACH TO ENTERPRISE POTENTIAL DEVELOPMENT IN PROJECT MANAGEMENT: HUMAN CAPITAL, MARKETING AND ECONOMIC SECURITY**

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One of the first steps in organizing of a comprehensive system for developing the potential of business entities is to analyze the existing potential of the business and see how it can be improved. At this stage, you can invite a third-party consultant who can help you to analyze the market, identify areas where value can be added, and identify innovative opportunities, both internal and external. For example, the analysis may identify the need to improve dissemination methods to reach more customers. On the other hand, research can show the possibility of improving products and services

with a target on a specific audience. It is desirable to start the organization of a comprehensive system of potential development of business entities with the definition of business strategy. After summarizing the innovation potential, it is possible to gather a team, identify concrete strategies and find out what needs to be done to make companies more innovative [2]. It is necessary:

- to find out which interventions will bring the best profit from investment and identify necessary resources;
- change products and services based on completed research;
- develop the best business processes to satisfaction business needs;
- provide better tools for employees to improve their skills;
- train staff so as they can study and implement new processes;
- evaluate specific issues, for example, related to intellectual property.

The foundation of business innovation relies on your staff and their attitude. Smart companies always encourage the creative thinking of their employees. For example, creating a way for employees to express their innovative ideas, it can be a platform for suggestions, forums for employees to discuss ideas, or personal brainstorming sessions. Or to appointment a «champion of innovation» for management and monitoring of innovative projects, which contributes to the empowerment of employees [3; 6]. It is important to allow team members to take calculated risks and think about alternatives because people need to know that the company supports them when they generate ideas. For example, when an employee experiences a new process, the company must be prepared for both success and failure. This is a part of the creative process. Successfully innovative projects must also be rewarded with incentives such as bonuses or other forms of compensation. These tools will promote the loyalty of your creative and innovative staff. One of the options for attracting innovation to the business may be the establishment of the project «Business Laboratory» - a system for finding ideas to create new products with the involvement of employees. Today, any business faces the task of increasing profits, including new businesses. The project «Business Laboratory» is closely related to the strategic objectives of the enterprise and shows an effective system for finding new ideas [1; 7]. It is main task - to involve in the process not only management but also other categories of staff. In each enterprise, some workers need to be perceived as talented specialists of his business, able to offer initiatives that can become full-fledged products. All categories of employees are taking part in the project because the ability to initiate ideas does not depend on age or specialization. The main selection criterion is an active vital position, a high professional level, and assessment of the effectiveness of activities, creative and innovative capabilities, and participation in development programs. Thus, commands are formed with a small number of people who are

engaged in generating ideas. The expert commission determines leadership initiatives that are recommended for implementation. Perspective ideas that did not go to the leaders are sent to refinement. From another quantity, a bank of ideas is formed. Old and new teams, for the existence of a project, except giving new proposals, can work out any ideas and prove them to the project initiative. Of course, while the idea is not processed and not analyzed, its significance and perspective will be difficult to appreciate. The business laboratory develops horizontal connections between employees of units, stimulates the exit beyond template communication, and expands interaction and contacts [8]. Another means of attracting innovations in business is to launch their own information platforms. The purpose of their creation is to attract and evaluate innovative ideas of personnel. The use of worker's creative ability today is a sufficiently distributed tool in the world by which many companies solve various tasks and develop their business. The first step is to create convenience, with remote access, and useful for all corporate portal workers. The activity of the platform can be carried out in two directions. First - conducting competitions whose purpose is determined by departments, directorates, departments, branches of business structure. Each employee of the company can become participants that must solve specific tasks for improving technological and business processes, creating new products, optimization of production operations, etc. Competitions must have limited terms, and the proposed solutions can evaluate only customers [9; 10]. The best ideas are taken to introduce, and the authors will receive a reward.

This platform is not limited only by doing competitions but also becomes a kind of ideas bank. Various ideas will be gathered, discussed, and refined. Moreover, the platform has a defined topic that corresponds to the strategy of the enterprise and can cover different areas of its activities. Ideas may be different: from simple, those employees can introduce independently at their workplace, to that which requires additional economic calculations and opening projects. The main thing for the idea is to be well worked out, and the worker who gave to be interested in transforming it into life and is ready to take part in its implementation [4]. All offers that are located on the platform are open access to the company's employees. Experts of those units in which sphere of the activity are engaged in a specific idea carrying out their evaluation and selection. In this case, each worker registered on the platform can evaluate, leave comments and leave an offer for revision, to offer an optimal option for the realization of a specific initiative. The creative addition is that user activity can be encouraged by introducing its own innovation currency in which the number of earned points will be converted to perform productive actions on the platform. For example, for each submitted proposal, its author can receive 100 points, the same

quantity for its approval by experts, and 500 points - after the realization of initiative [5]. Employees can exchange points on real prizes on the platform. Difficulties due to the fact that not all manufacturing units are accessible to the main internal information resource, you can solve by providing access to employees from home or mobile device that has access to the Internet.

It is anticipated that such resource will be able to satisfy various needs of the company's employees: from receiving information about various aspects of the company's activity, access to the necessary documents, and methodological guidelines for the preparation of online applications [6].

The following example aims to increase the flow of new ideas and increase the speed of their realization, finding new tools, approaches, and forms of interaction of workers to generate more proposals that will help businesses achieve ambitious goals and overtake competitors.

Compare your own efficiency with competitors can help indicator of TSR (Total Shareholder Returns). Investment profitability indicator in the company's shares from an investor point. Consists of the amount of the profitability of dividends and profitability from the growth of market value.

Steps within the project, boundary to make the company become innovative. It is necessary, to begin with, to set a long-term ambition target and display it in clear indicators - EBITDA (Earnings Before Interest, Taxes, Depreciation, and Amortization), costs, quality, delivery discipline, and more. They will be touched as manufacturing and functional divisions. It is important to set targets, based on marketing and technological strategy [9]. This means that it is necessary to study markets, new technologies to see in which technologies and practices the company lags behind competitors. In addition to traditional searches for ideas within their processes, due to continuous improvement, you can turn to the search for ideas in the external environment - these are conferences, seminars, scientific schools, patent bases, etc. This work must be systematized and decide who will do it, for example, the Center of Technical Development. His task is to form a comprehensive development program, which will provide a constant lead over competitors by indicators of production cost. Representatives of other directorates should assist the team in this, which will finish the issues in their areas in the external environment. Ideas can be different - from a low-cost means of cost optimization on aggregate that can be realized by the brigade forces - to large investment projects that will require a different level of involvement of management.

The company may organize a platform for discussion and promotion of startup projects. The startup platform is organized according to the example of Roman amphitheatres, where students sit on multi-tier rows and the lecturer stands in the center and communicates with the audience [10]. This platform is one of the elements of creating conditions for the development

of personnel and organization so that people can come up with any ideas - strategic, new, relevant, discuss them and work out. Usually, all this has been long, but this happens in a closed space, in the format of committees, departments, and today a new forum for discussion is required.

Search for ideas with the help of crowdsourcing platforms. The search for potential partners and innovative technologies that can be implemented in the company may take place at international crowdsourcing platforms, such as InnoCentive Inc.

Examination of proposed ideas is carried out in two steps. At the first step, proposals are selected that generally meet the task, and those who have passed into the second step - are analyzed for compliance with the defined criteria. Each criterion has its weight in evaluation, and the correspondence is determined in the points. In further the ideas that scored the highest score will be processed.

It should be noted that when using crowdsourcing platforms, solving of the problem could come from other industries.

The main task of this project is to create a customer is a reasonable feeling that the product or service is made precisely for him and satisfies his personal needs. Thus, modern technologies allow you to go to true customization, and not to its simulation. The difference of a new industrial structure, which provides a complex of advanced production technologies, from the previous structure, is that the previous one is built on a scale effect. The scale effect is connected with a change in the value of the unit of products, depending on the scale of its production by the company in the long run. Reducing costs per unit of production while increasing the creating of production is called «economies of scale». Today it can be noted that the scale effect stops working, or its influence is significantly reduced and continues to decrease. This leads to a situation where competitiveness, first of all, receives individualized products under the order of specific consumers by introducing constructive or design changes. In the previous industrial structure, this was achieved by introducing customization solutions in the latest stages of the production cycle. But the transition from the serial product requires a fundamentally different production management system: the number of control objects sharply increases, there is an increase in the control parameters on the previous cycle of technology development, which is associated with the massive introduction of information systems. The complexity of management of the production system, taking into account that it cannot be separated from the entire life cycle, grew up greatly. On a change of hierarchical, matrix management systems come systems based on the setecentric principle. But the introduction of new control systems is possible only in production systems of a new industrial structure based on advanced production technologies [1]. At the same time, it is difficult to

find a company in which would have such a production, so the output is artificially created testing grounds that will allow you to work out production competencies because of the constant embedding of new technological solutions to the production system. No manager in the world would ignore the theme of innovation and did not see the future of any company in them. Except of innovations, most companies are concerned about increasing of operating efficiency and try to solve this task by trial and error method using the arsenal of different approaches which market and consultants offering.

But in practice the following is:

Innovations based on the Theory of Constraints (TOC) - 98% of failures;

Innovations based on the method of Quality Function Deployment (QFD) - 98% of failures;

Innovations based on the technology of thrifty production (LEAN) - 98% of failures;

Innovations based on the project management method (SCRUM) - 98% of failures;

Innovations based on open innovations - 98% of failures.

Factors that will contribute to the success of innovation and, accordingly, the lack of unsuccessful implementation attempts:

the ability to detect and solve compromises;

- the ability to detect and solve problems by compromises;

- availability at the meta-level of clear course related to consumer value;

- system thinking;

- management of dynamic values;

- a clear understanding of complexity - fast training cycles, S-figurative curves, schemes - and the need in fast training cycles;

- a clear understanding of the presence of a «critical mass in a critical moment»;

Mandatory understanding that the client/consumer has a gap between the word and deed and understanding how to deal with it.

Herewith it is impossible to reduce the value of intangible objects that effect on the introduction of innovations, namely:

Impact skills should be enough;

- a great ability to work together in interdisciplinary groups is required;

- perseverance, decisiveness and desire to work on a difficult task;

- high ability to cope with constant failures;

- the ability to admit that ideas have zero value;

Ability to form and maintain a clear sense of forward movement inside the group.

The success of innovation means that material and intangible elements were perceived correctly.

Introducing a system that would contribute to an increase innovative

potential of the enterprise most often occurs with difficulties.

The first problem - is resistance of workers against innovation, and the second is the lack of participation of senior management in the process. Prevention of such situations should be given to priority, because they are capable to slow down the implementation process and not only not lead to improvements, but also to worsen the situation in the collective.

The interest of personnel in the introduction of changes may decrease through an inefficient organization of project work: lack of coordinator, support management, reliable monitoring and evaluation system. Lack of planning and effective management can lead to an incorrect distribution of loads between employees, overworking which interfering effective cooperation.

Another group of reasons for the resistance of workers to changes forms the flow of information, communication in the group. Any delays, errors in the information, the lack of feedback, or a clear planning system cause concern to employees, because the purpose for implementation of innovation is fuzzy, as well as the benefit expectation from its implementation. In a condition of lack of information, gossips are often distributed, which only complicates the state of affairs. The solution is: build a reliable and effective communication system at all levels.

It is impossible to exclude people's behavior and their personal attitude to changes. Changes always make their share of uncertainty in a familiar situation that not everyone can accept calmly. In addition, among the reasons for resistance to changes can be called unwillingness to take on additional responsibilities, commitment to traditions and negative experience in the past. Reduce these fears can an adjusted communication system, preliminary training, support of the management and transparency policy, and openness in conducting any changes [5].

One of the main problems that arise in the enterprise is the lack or insufficient training of employees to introduce innovations. Without understanding the essence, goal, concepts and without having tools for its implementation, they make mistakes more often and eventually are disappointed in the system. Resistance of personnel can be expressed in different ways, for example, they may deny the need of changes, trying to sabotage any measures, or accepting formal participation. In extreme cases, this can lead to depression that often occurs in a such situation. Thus, to prevent resistance of innovation by workers possible thanks to qualitative training and planning of the implementation, preliminary training, forming an effective communication system, support and motivation from management.

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# STATE SUPPORT FOR INNOVATIVE DEVELOPMENT AND CREDITING OF ENTERPRISES IN THE AGRICULTURAL SECTOR OF UKRAINE

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Agriculture is now a leading industry in Ukraine with a considerable export potential. However, only 2% of Ukrainian utilized agricultural area are cultivated under the cost-effective agricultural technologies, while the total losses reach 30%. This, inter alia, is due to the fact that the industry funding is rather complex. There is a trend in the agricultural sector to reduce the financial resource capacities in the commercial farm units of all types. The majority of agricultural farm units lack the funds to be invested in innovations.

Among the researchers who have studied this problem, the following should be mentioned: O.V. Hryvkivska and O.Ye. Hudz' [2; 4], whose works reveal the forms and methods of state support for agriculture in the context of ensuring innovation and investment security; T.H. Bondaruk, M.Y. Demianenko, P. Pyvovar [1; 5; 13], who analyzed the impact of budget funding on the development of agricultural production; H.V. Korniychuk, R.I. Lopatyuk, L.V. Tranchenko, H.V. Sydor, N.M. Feschenko [9; 10], who revealed the prospects of crediting for ensuring innovative development of agricultural enterprises, principles and features of attracting investments to agricultural enterprises; M.M. Humeniuk, L.L. Kalinichenko [3; 8], who described the mechanism for effective operation of agricultural enterprises in the frameworks of creating the innovative model of development of Ukraine. The analysis of published works, however, revealed a need to deepen the research aimed at forming a modern system of funding the innovations of agricultural enterprises.

The methodological framework of the research bases on the leading scientific progress of Ukrainian and foreign scientists to ensure the development of agricultural enterprises. The research has used a number of both general and special research methods that are interrelated and

consistently implemented in the course of research. Analysis, synthesis, and logical generalization are used to identify trends and reveal the specifics of funding the innovations of agricultural enterprises, as well as to generalize the existing experience in increasing the efficiency of agricultural enterprises. System approach, statistical and economic methods, as well as graphical and analytical method are implemented for visual reflection of the processes under research, along with the socio-economic phenomena.

It is worthwhile to emphasize that funding the innovations of agricultural enterprises has a certain peculiarities, which is due to a number of important factors, such as a significant time lag between the investing costs and obtaining results, long period of reproduction of the fixed assets, seasonality of production, given the need for ensuring continuity of the production processes. Reproduction of the main fixed assets takes rather a long time. Living organisms subject to the biological reproduction laws are used as material and supplies. Also climatic conditions of the region significantly impact the performance of agricultural enterprises. The sources of funding the economic activity of agricultural enterprises are represented by their own financial resources, state funding, and credit resources. It is such factors as the actual need, existing opportunities and the importance of crediting in creating the conditions for the successful development of agricultural enterprises that determine the increased research interest to exploring the prospects of their increased involvement. Thus, according to Prostobank Consulting, special credit programs for small agricultural enterprises in Ukraine are offered by commercial banks of Raiffeisen Bank Aval PJSC, ProCredit Bank PJSC, Credit Agricole Bank PJSC, and Megabank PJSC.

The conclusion of credit agreements is significantly determined by the high demand of agricultural enterprises for fixed assets, significant physical depreciation and obsolescence of available funds, seasonality of production, unsatisfactory financial and economic condition of the majority of enterprises. Currently, the features of the existing crediting programs for innovations of small agricultural enterprises are a flexible repayment schedule, credit purpose, as well as an expanded list of assets that can act as collateral. The state program to provide subsidies on repaying part of the credit interest rate slightly facilitates the access of agricultural enterprises to credit resources, while concessional crediting provided for the introduction of competitive selection of agricultural goods producers for these payments.

Resolution of the Cabinet of Ministers of Ukraine dated April 29, 2015 No. 300 “On the approval of the Procedure for using the funds provided in the state budget for financial support of measures in the agricultural sector by reducing the cost of credits” [6] provides for reimbursement of the economic entities in the agricultural sector that attracted credits. The reimbursement amounts to 1.5 of the discount rate of the National Bank of

Ukraine, effective on the date of accrual of interest, but not higher than the amounts provided by credit agreements, reduced by five percentage points.

Compensation is currently applied to the interest rates on the credits raised for the purchase of fixed assets for agricultural production, the implementation of costs associated with the construction and reconstruction of agricultural production facilities, as well as short-term loans raised to cover production costs. For the borrowers operating in the livestock sector, the reimbursement amount may not exceed UAH 15 million, and for borrowers operating in other agricultural activities (including processing of agricultural products) may not go beyond UAH 5 million [6].

However, the annual financial support for innovations of agricultural enterprises and the increased volumes of the aid do not yet provide sufficient progress. The reason for this lies mainly in the incompleteness of the legal framework governing such the support for agricultural enterprises. Also the actual needs in reimbursement lack the correct definition and well-reasoning thus leading to the loss of rights to receive the reimbursement. The current legal framework does not allow to significantly increase the volume of concessional crediting for innovations of the agricultural enterprises. Regional competitive tenders under this state program are often held quite formally, without proper definition of the criteria for making appropriate decisions.

However, the practice of state support of agricultural enterprises is determined not only by the peculiarities of this industry. There are a number of features inherent in Ukrainian enterprises of the agricultural sector. It is worth to emphasize the low level of rural infrastructure, along with the rupture of previously developed technological and economic links between different areas of agricultural sector, the need for significant financial investments to maintain soil fertility, as well as the fact that Ukraine lags far behind developed countries in terms of science and technology progress and advanced technologies introduction [1].

An important role in intensifying the innovations of agricultural enterprises is provided for by the budget support in two ways. Firstly, it is provision of various benefits reducing the amounts of fiscal payments to the state budget. Secondly, it is the budget allocations for agricultural production. In recent years, the state has coordinated the implementation of more than thirty programs of this kind. But according to WTO requirements, these programs are subject to reduction by 20% within six years after Ukraine's accession to the WTO. It is currently regulated that the amounts of budget support for agricultural production or trade should not exceed 5% of the concrete product value.

Pursuant to the approved programs of budget support of agriculture, direct funding is possible only after the commencing of the Law of Ukraine

on the State Budget of Ukraine for the current year along with the Procedures for the use of budget funds, according to the relevant programs. The Law defines the amounts of budget allocations for the Ministry of Economic Development and Trade of Ukraine. In 2020, the Cabinet of Ministers of Ukraine adopted Resolution No. 279 “On amendments to the Procedure for the use of funds provided in the state budget for the development of viticulture, horticulture and hop growing” [6]. Also, a maximum percentage of reimbursement has been set for each area of state support to the economic entity. The maximum amount of funding should not exceed UAH 25 million for one budget year.

According to the results of recent research, the total increase in budget allocations in terms of support programs of the agricultural sector is distributed mainly in the next proportion: budget livestock subsidies and state support for crop production – 36.2%; financial support of agricultural sector enterprises through the mechanism of cheaper credits – 31.0%; reimbursement of establishing and supervision of new orchards, vineyards and berry fields – 11.5%; financing of programs to reduce the cost of insurance premiums actually paid by agricultural market participants – 19.0% [7; 11; 14].

One of the most important sources of funding for innovations is the own funds of agricultural enterprises. At the same time, the level of depreciation allocations is insufficient for the full reproduction of the fixed assets. The net profit remaining at the disposal of agricultural enterprises does not provide for starting large-scale and cash-consuming projects aimed at high-quality technical re-equipment of the production. Agricultural sector enterprises of all ownership forms faced the problem of accumulating own equity to modernize production. The actual service life for most of the equipment and facilities exceeds the standards by 2–3 times. The annual depreciation of fixed assets sometimes exceeds their renewal volumes. Agriculture is seized by a large number of non-attractive facilities for investment. The existing technologically backward capital-intensive and energy-intensive industries are not capable of producing high-quality goods in accordance with the international standards. Thus, the agricultural production currently experiences a constant de-industrialization, with more and more cases of transition to manual labor.

Innovations of agricultural producers under the crisis conditions of Ukrainian economy and sharp shortage of financial and investment resources are gradually winding up. There is a stable degradation of existing scientific and technical and innovative potential in the industry. There are less advanced developments with their novelty becoming less relevant. The enterprises lack potential to implement innovations using their own resources.

The current shortage of investment resources in Ukraine also prevents from attracting citizens to finance long-term programs and innovative projects. The experience of implementing the state policy of stimulating savings shows the need to focus efforts on comprehensive support for the formation and development of non-bank financial institutions. This kind of support contributes to the tax incentives for innovation, depreciation benefits, venture financing, cooperation of incentive funds, budget loans, state subsidies and reimbursements.

Under crisis conditions, processes of crediting the innovations of agricultural enterprises are currently slowing down. Currently the short-term crediting has become a common practice. Thus, insolvency of borrowers increases, and all the relevant negative consequences appear. Commercial banks mostly do not take into account the specifics of seasonality in agricultural production.

In 2020 The Verkhovna Rada of Ukraine has lifted the moratorium on the sale of utilized agricultural areas dated July 1, 2021 (draft law No. 2178-10). The World Bank estimates that the opening of the land market in Ukraine will provide an additional 1.5% to GDP growth annually. According to T.S. Milovanov, in the first year of the land market, GDP of Ukraine will gain an additional USD 700 million, and not less than USD 4 billion by 2025. According to the current statistics, the cost of lease of Ukrainian land per hectare ranges from USD 50 to USD 70 per year, depending on the region. With the opening of the land market, the price per hectare will vary from USD 1,500 to USD 2,000, and the cost of rent will rise to USD 100–150. Subsequently, the value of land will significantly increase and reach the level of European prices.

Thus, opening of the land market will let farmers have the right to pledge their land as collateral in a commercial bank, obtain credits and invest in enterprise development, perform innovations, technical modernization and re-equipment of the production. Ukraine authorities also plan to create a Deposit Guarantee Fund for small and medium farmers (at the expense of state funds). Possibilities of reducing credit rates for small farms are considered (up to 5–7% or even 3–5%, currently the cost of a credit is 17–20% per annum). Legislation has been amended to allow the family farming business to pay taxes under a simplified scheme. Cooperation with the European Union is directed towards this purpose (EUR 26 million will be allocated to support small agricultural businesses, according to the signed agreement). These measures implemented as a whole should contribute to the increased performance and production volumes, rise of the total capitalization of Ukrainian agriculture.

Therewith, the problem of pricing of domestic agricultural products needs to be addressed. This will prevent the outflow of money from the

agricultural sector of Ukraine and provide adequate and comprehensive state support to the industry. Further researches should focus on developing an effective mechanism for combining efforts and coordinating the interaction of public authorities, institutions, enterprises, commercial banks, information and consulting agencies to attract long-term investment in the innovative development of Ukrainian agricultural enterprises. It is also worth considering the feasibility of comprehensive implementation of relevant programs for regional innovation along with projects aimed at intensifying innovations of agricultural enterprises.

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## **ENSURING THE FINANCIAL SECURITY OF THE STATE THROUGH THE INTRODUCING NEW FORMS OF INVESTMENT IN UKRAINE**

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In the current crisis conditions that accompany the development of the world economies in recent years, one of the main tasks of the development is to ensure stability at the state level. This, in turn, cannot be achieved without increasing the efficiency of all economic entities, which largely depends on its level of security. Security issues are mainly considered in terms of national or economic security of the state, regions, individual industries or sectors of the economy, enterprises, and population. But today we can talk about «... the right to the existence of such an economic category as financial security» [1, p. 89-90], which contains many internal and external aspects.

Modern challenges to the financial security of many countries, which, at the current stage of their development, are characterized by instability and cyclicity, require some coherence and unification of the categorical apparatus, identification of basic characteristics «financial security» and the

factors that threaten it, clarification and monitoring of the indicators that characterize the level of financial security and the development of effective measures to protect all financial interests.

Financial security cannot be considered apart from economic security, as it is its most important component. So L. Schwab identifies such components of economic security «... as technological, resource, social and financial security» [2, p. 540-541]. At the same time, financial security occupies one of the key positions in the formation of economic security.

O. Baranovsky presents a detailed definition of financial security «... as a degree of protection of financial interests; the level of security of subjects of all levels of financial resources management; the state of the components of the financial market; quality of financial instruments and services; the state of financial flows in the economy, which allows us to consider it one of the most important system-forming elements of economic security of the state» [3, p. 28].

This formulation of financial security can be associated with the concepts of independence and balance, which also have the same nature with stability.

The correlation between economic and financial security has been highlighted via comparing their characteristics (see Fig. 1). As you can see from Fig. 1, given all selected features, there are differences between economic and financial security, but they are not significant and are related to the level of their impact on the object, the security of which they provide.

Thus, when considering the essence of financial security, its connection and subordination to economic security should be considered determinative. It is the provision of financial security of the object that creates the preconditions for ensuring its economic security.

One of the main factors in ensuring the financial security of the state is a sufficient level of investment in the economy. The development of production, solving social and environmental problems, compliance with modern requirements of available financial and human capital depends on the appropriate level of investment.

It should be understood that the owners of free funds are faced with the dilemma: to invest or to save. On the one hand, it will contribute in promoting development, increasing profitability, however the risks of additional costs and capital losses are high as well. In this regard, at the present stage of economic development it is necessary to introduce new forms of investment that will help increase the efficiency of investment activities and ensure the financial security of the state.

Most researchers believe that currently Ukraine needs to intensify investment processes to ensure the financial security of the country's economy [8, p. 25-27; 9, p. 64-67]. At the same time, a lot of attention is paid to the sources and usage of these investments: foreign or national;

public or private; real or financial [10, p. 128; 11, p. 33-35; 12, pp. 134-135]. However, the issue of the modern types of investments and their forms is not covered at the appropriate level in modern research.

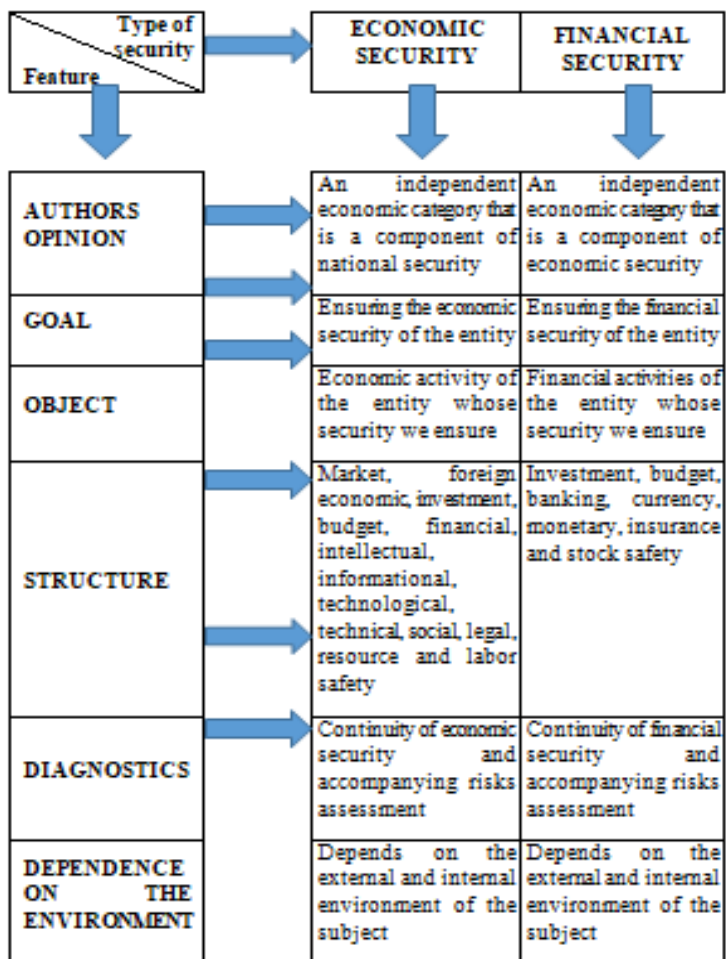


Fig. 1. Comparative characteristics of economic and financial security  
*The source: compiled by the author based on [3, 4, 5, 6, 7]*

If to consider what could be the object of investment, then everything is clear - values (see Fig. 2).

As for the results of investing, most authors tend to consider the result to be possible additional value or return on investment, but the result may

be something else. Thus, the law stipulates that investments can result not only in profits, but also in any social or environmental effect. This is very important for the concept of a new type of investment for the Ukrainian economy - impact investment.

Property and intellectual values	
→	funds, target bank deposits, shares, stocks and other securities (except promissory notes)
→	movable and immovable property (buildings, equipment and other tangible assets)
→	intellectual property rights
→	a set of technical, technological, commercial and other knowledge, designed in the form of technical documentation, skills and production experience required for the organization of a particular type of production, but not patented one («know-how»)
→	rights to use land, water, resources, buildings, structures, equipment, as well as other property rights
→	other values

Fig. 2. Property and intellectual values [13]

Leading place in assessing the economic potential of the national economy is taken by foreign investment. After analyzing the last seven years of the practice of attracting foreign investment (hereinafter FDI) to Ukraine, it can be noted that there were several periods with a negative balance of FDI on foreign direct investment in Ukraine and from Ukraine - 2013, 2014, 2017 and 2020 (see Table 1).

**Table 1**

*Foreign direct investment in Ukraine from 2010 to 2020 (million USD) \**

Years	FDI in Ukraine		FDI from Ukraine		Surplus	
	de facto	before the previous period	de facto	before the previous period	de facto	before the previous period
2010	6495	1679	736	574	+5759	23.7%
2011	7207	712	192	-544	+7015	21.8%
2012	8401	1194	1206	1014	+7195	2.6%
2013	4499	-3902	420	-786	+4079	-43.3%

2014	410	-4089	111	-309	+299	-92.7%
2015	2961	2551	-51	-162	+3012	907.4%
2016	3284	323	16	67	+3268	8.5%
2017	2202	-1082	8	-8	+2194	-32.9%
2018	2355	153	-5	-13	+2360	7.6%
2019	3070	715	648	653	+2422	2.6%
2020	-343	-3413	56	-592	-399	-116.5%

\*since 2014 - without taking into account the occupied territories (Crimea, Sevastopol, parts of Donbass)

The source: <https://bank.gov.ua>

2020 was the most critical year, FDI inflows to Ukraine decreased by \$ 343 million, and FDI from Ukraine increased by \$ 56 million compared to 2019. This situation is due to insufficiently rapid progress in the implementation of structural reforms and uncertainty with further prospects for overcoming the COVID-19 epidemic in Ukraine.

It should be noted that in the last 10 years the world has undergone certain transformations and fundamental changes that affect not only the form and instruments of investment, but also their fundamental principles. As a result of these processes, new types of investment have emerged, which include impact-investments - a fundamentally new investment paradigm.

Impact-investment is a new term used to describe investments made in many asset classes, sectors and regions. In 2019, the Global Network of Impact Investors (hereinafter GIIN) for the first time developed a methodology for estimating the overall size of the impact-investment market. In 2020, GIIN published an annual survey of investors affecting the market, which includes an updated analysis of market size. According to GIIN estimates, as of the end of 2019, more than 1,720 organizations managed \$ 715 billion in impact-investment (for comparison: in 2015, \$ 77 billion was attracted, and in 2017, the volume of involvement in this sector was 114 billion US dollars) [14].

The impact investment market includes a number of types of investors characterized with the help of the type of organization, location of headquarters and size of the investor.

Impact-investments are a new paradigm of investment activity, which opposes the established view that social and environmental problems can only be solved with the help of the state or charity, and market investments should be aimed merely at obtaining financial results.

The term «impact-investment» can be interpreted as an investment to obtain a social and / or environmental effect along with profit. Based on

the above-mentioned definition, we can identify several main features of impact-investments (see Fig. 3).

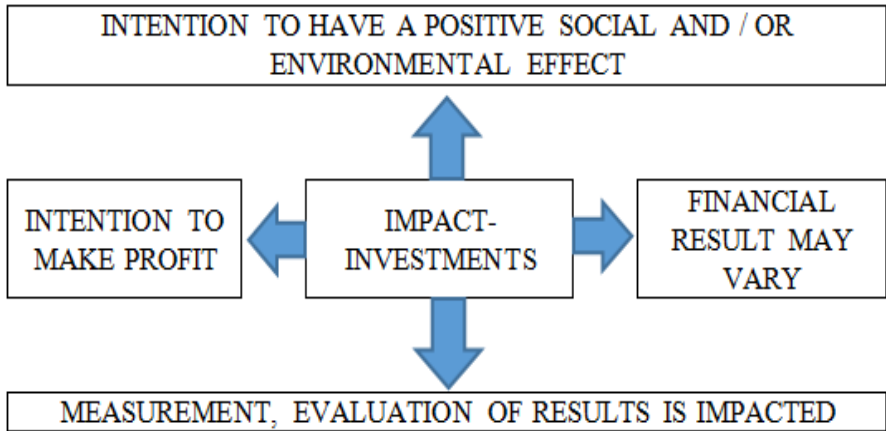


Fig. 3. The main features of impact-investment

*The source: author's development*

1. Intention to have a positive social and / or environmental effect. The investor chooses to invest in a project, the implementation of which is aimed at solving a problem and has a positive social and / or environmental effect.

2. Measurement, evaluation of results is affected. A peculiarity of the impact-investment is the obligation of the investor to evaluate and inform the public about the achieved social and environmental results, to ensure transparency and accountability of the development of funds in the investment process.

3. Intention to make profit. When making impact-investments, investors expect to make profit or, at least, to return the invested capital.

4. The financial result may vary. Investors aim at obtaining a financial result that may be below or equal to the risk-adjusted market interest rate.

Currently, there has been a positive Ukrainian experience of impact-investments. For instance, Urban Space 100 is a restaurant in Ivano-Frankivsk, the shareholders of which are 100 locals. 80% of the profits of the founders and owners of shares of this social enterprise are spent on the development of urban infrastructure, landscaping, creating conditions for sports. Today in Kyiv the idea of Ivano-Frankivsk residents - Urban Space 500 - is being implemented.

Impact Hub Odessa is looking for and developing new ideas for social transformations. Impact-investors spent almost \$ 5 million on the development of the Impact Hub and the Green Theater in Odessa. Today, Impact Hub Odessa is 1,300 m<sup>2</sup> of educational space, 7 regular programs in

various fields, more than 200 supported social projects, 1,700 public events and 50,000 guests a year.

Impact-investments, like any other type of investment, are associated with various risks: the risk of the business project itself, liquidity risk, the risk of the complexity of leaving the project, the risk of lack of market demand, competition risk, financial risk, currency risk, reputation risk, the risk of not achieving the planned social and environmental effect (impact).

Despite the attractiveness and growing interest in the impact-investment market, investors are also facing challenges.

The most pressing problems include the following:

- lack of capital due to high risk / return;
- lack of high-quality investment proposals;
- lack of institutional structures that meet the needs of investors;
- lack of a single interpretation of the concept of «impact-investment market» and its segments;
- insufficient research and information;
- difficulty in assessing the impact, insufficient number of methods;
- insufficient number of specialists with relevant skills in this field;
- insufficient state support for the impact-investment market.

The prospect of implementing the impact-investment mechanism in Ukraine will significantly increase the level of financial security in the country and attract private capital to address social and environmental issues, which, on the one hand, will reduce the burden on the state budget and, on the other, serve as private initiative and corporate social responsibility. It should be emphasized that the paradigm of impact-investments has a noticeable social-oriented nature and fully meets all the requirements for financial security in the country and the model of social-economic development of Ukraine.

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## **«GREEN» MODERNIZATION OF THE NATIONAL ECONOMY IN THE CONTEXT OF SOCIO-ECONOMIC SECURITY AND SUSTAINABLE DEVELOPMENT**

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Recent decades have seen changes in the understanding of the tripartite relationship between society, the economy and nature. Most economic development and growth strategies have previously encouraged the rapid accumulation of physical, financial and human capital, but due to excessive depletion of natural capital, natural resources and ecosystems have been sacrificed.

The term «sustainable development» was first used in 1980 in the publication of the International Union for Safety and Health at Work and was interpreted as the integration of the conservation and development to ensure a change in the planet that can ensure the safe survival and well-being of all people. However, this definition became widespread after the publication in 1987 of the report «Our Common Future» of the UN Commission on Environment and Development (WCED), headed by the Prime Minister of Norway G. H. Brutland [1].

The state of the environment can be transformed from degradation in an unstable type of economy, to a state of ecological equilibrium in an economy of equilibrium type, and to a state of environmental recovery in an environmentally sustainable type of economy. Thus, sustainable development is determined by a set of quantitative and qualitative changes in the socio-ecological and economic system and the ability to live a balanced life through the ability to maintain stability and stability of all involved subsystems at different levels of the national economy. critical points for the transition of the national economy from one relatively stable state to another. Sustainable or «green» growth focuses on economic development to ensure the accumulation of financial capital needed to overcome poverty through the creation of social and human capital, as well as to address environmental issues, thus increasing the value of natural capital.

The concept of sustainable development is based on a large number of different models, theories, concepts, the essence and content of which, as well as the urgent needs of today, have determined the cognitive perception of relevance and timeliness of its adoption and implementation. The green economy is designed to address the challenges of achieving the goals of sustainable development, in particular the long-term sustainability of the socio-economic system together with the sustainability of the natural environment. That is, the «green» economy is a mechanism for sustainable development, and its formation involves a review of living standards in order to preserve the natural environment, increase resource efficiency, develop environmentally friendly activities and restructure the economy to increase the share of green sectors. In fact, the green economy should be seen as a path to sustainable development.

Today, the term «green economy» is broad, ie it covers any theory that considers the economy as part of the environment in which it is based. Until the recognition of the «green» economy as a mechanism for sustainable development, it, in fact, remained the privilege of rich countries. Today, the situation has changed and it is developing countries that can gain additional benefits and incentives for economic growth through the implementation of green economy strategies. However, there is a need to improve public policy, including measures in the field of pricing and regulation, in order to

create market incentives for a more rational allocation of capital in the field of resource use to more technological sectors, taking into account social and environmental impacts, especially in developing countries.

The author of the theory of green economy is David Pearce.

The formation of a «green» economy, based on a fundamentally new type of technology and economic relations, is natural. On the one hand, this is due to the need to move to sustainable development, which allows to overcome the threat of global environmental catastrophe and ensure the transition to the priorities of social (personal) human development. On the other hand, the achieved scientific and technical level of society at the present stage creates the preconditions for solving the tasks.

The substantiation of the global «green» new course preceded the development of the concept of «green economy». The initiative for global change was made by the United Nations, which in 2009 launched the Green Economy Initiative program, which was developed, popularized and supplemented. Thus, in December 2015, the EU Commission adopted the EU Action Plan for the Circular Economy, which identified the circulation of plastics as a key priority [2], committing to “prepare a strategy addressing the challenges posed by plastics throughout the value chain and taking into account their entire life-cycle»[3].

The goals of the proclaimed «green» course included the need to rehabilitate the world economy and ensure its post-crisis development, reduce poverty, as well as reduce carbon emissions and combat the destruction of ecosystems. The further development of the provisions of the Global Green Course is reflected in the UNEP report «Towards a Green Economy: Ways to Sustainable Development and Poverty Eradication» (2011) [4].

Among the many international forums that focused on the green economy, the UN Conference on Sustainable Development «Rio + 20» (Rio de Janeiro, 2012) [5], during and after which in the reports and documents of the UN structures state that the basis of the transition to sustainable development is the formation of a «green» economy. «Green» economy is a field of economics, according to which the economy is considered a dependent component of the natural environment, exists within it and is part of it; aimed at preserving public welfare through the efficient use of natural resources, as well as the return of end-use products to the production cycle.

The transition to a «green economy» in different countries will take place differently, as it depends on the specifics of natural, human, physical (artificial) and institutional capital of each country, its level of development and socio-economic priorities, environmental culture. The final document of the UN Conference in Rio de Janeiro «The future we want» (2012) emphasizes that in the transition to a «green» economy, each country can choose an approach in accordance with its national plans, strategies and priorities for

sustainable development, there should be no rigid set of rules [5]. In 2015, the Sustainable Development Goals (SDGs) were adopted, agreed by all UN member states as a general call to action to eradicate poverty, protect the planet and ensure that all people have peace and prosperity. 2030 [6]. CSWs came into force on January 1, 2016 (Fig. 1).

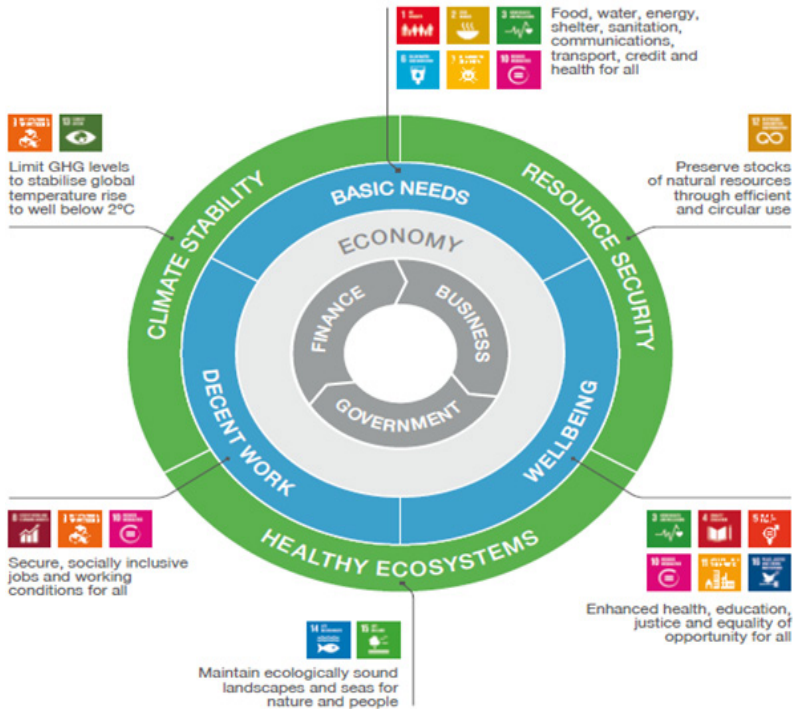


Fig. 1. Sustainable development goals and objectives of the economy [6]

Proponents of the concept of «green» economy consider the currently dominant economic system imperfect, as evidenced by the crises and failures of the market mechanism, its wasteful nature. Of course, it has yielded some results in improving the living standards of society, and especially of certain groups, but the negative consequences of this system are enormous: environmental problems, depletion of natural capital, lack of fresh water, food, energy, large-scale poverty, inequality. All this poses enormous threats to future generations [7].

Skeptics of the introduction of a green economy argue that modeling based on natural ecosystems will not always be effective, they are skeptical of the greening of the economy. However, many countries show the advantages of the «green economy» by their own example, and not only Scandinavia,

which is traditionally considered a leader in environmental protection, but also the countries of Asia, Africa and South America.

The transformation of economies into «green» is taking place not only in developed countries such as Germany, Japan, Spain or the United States, but also in Bangladesh, Brazil, China, India, Mexico and Morocco. The Republic of Korea was the first to announce the implementation of the concept of «green» growth as a national strategy. An example of successful «greening» of industry is Norway - a country that ten or twenty years ago was considered one of the most polluted in Europe, and is now included in the ranking of the cleanest countries in the world. This is not hindered by the fact that Norway is among the top three oil and gas exporting countries, behind Russia and Saudi Arabia, and has many industrial giants.

The general desire of the world community to «green» the economy as much as possible, contributing to the achievement of sustainable development goals, has led to a new stage in this process, namely the popularization of the circular economy. The European Commission has adopted an ambitious Economic Package cycle, which includes measures to help stimulate Europe's transition to a circular economy, strengthen global competitiveness, promote sustainable economic growth and create new jobs [8].

To date, governments in many developed countries have incorporated goals, objectives and specific tools to support green growth into their own long-term strategies or have developed separate strategies for green growth. The global financial and economic crisis of 2008-2009 prompted the world to address the issue of improving resource efficiency, developing new environmentally friendly industries and activities, the introduction of «green» technologies - that is, those changes that will ensure harmonious coordination of economic, social and environmental development and become a catalyst for global economic growth. The objective preconditions for the transition to sustainable development and the «green» economy have two key interrelated dimensions, which can be conditionally called resource and energy (Table 1).

Interpreting the information in table. 1., note that the indicator «ecological footprint» characterizes the size of the average area of the planet (in global hectares) per capita (or per unit of production) required to provide the necessary natural resources and utilization (disposal, treatment) of waste that are formed. The Global Footprint Network and the World Wildlife Fund (WWF) estimate that the average per capita environmental footprint is currently approaching 2.6 global hectares with a global biopotential capacity of 1.7 hectares. one inhabitant (Global footprint, 2016), which means exceeding the allowable load on the planet's ecosystems by more than 50% [9].

**Table 1**

*Measurements of objective preconditions for the transition to sustainable development and the development of a green economy*

<b>Prerequisite measurement:</b>	<b>Resource</b>	<b>Energetic</b>
Characteristics of the problem	The resource problem is due to a significant excess of the allowable load on ecosystems that maintain the stability of physical living conditions on Earth.	Problems of energy measurement have their origins in the resource dimension. They are a natural consequence of exceeding the permissible limits of impact on natural systems.
Causes of the problem	Today the production complex uses only 5-10% of extracted natural resources. The rest returns to nature, but in a more toxic and more unregulated state, causing the destruction and pollution of natural systems. The objectivity of the problem can be assessed by indicators of «ecological footprint» (footprint) and indicators of ecological thresholds (according to N.F.Reimers).	Energy production on Earth has reached the limit followed by the destruction of the planet's energy system (these processes cause, in particular, global climate change). According to NF Reimers, the ecological load on the Earth's biosphere in the late 80's was approaching dangerous thresholds of self-destruction of the planet's energy system - the threshold of exit from the steady state - 0.1-1.5% of normal, the threshold of degradation (destruction) - tenths and percentages of the norm).
Possible solutions	Changing the technological basis of existing production and the transition from subtractive to additive technologies. The use of material and resource innovations of the Third Industrial Revolution.	Transition to renewable energy sources. Reducing the energy intensity of human life processes by increasing the energy efficiency of human life processes.

*Source: systematized by the author based on [10]*

With such a hypertrophied load, ecosystems unsatisfactorily perform their functions of restoring natural resources and cleaning up pollution and destroy themselves under the pressure of the eco-destructive press, which leads to a slowdown in their functional activity. It is known that Ukraine ranks 51st among 121 countries in terms of «ecological footprint», which is equal to 3.19 hectares. This value is lower than in Russia (4.4 ha), the

EU (4.72 ha) and the United States (7.19 ha) [9].

The basis of the «green» economy is «green» technologies that work not with the consequences, but with the causes of environmental problems, radically changing approaches, products, and, most importantly, consumer behavior. In general, the solution of the resource problem is possible due to changes in the technological basis of production and the transition from subtractive technologies to additive ones. The first is based on cutting off all the excess during the production process (English subtract - subtract), the other - on the contrary - on adding (English add - add) only what is necessary, which in practice eliminates the inevitability of waste.

To solve the energy problem that objectively exists in the economy, it is necessary to reduce the energy intensity of processes and increase the energy efficiency of human life not by percent, but by times.

The dynamics of the interaction of the financial system, the real economy and sustainable development is still at an early stage of its formation, but it is appropriate to consider in terms of other fundamental changes in the financial system itself, including the emergence and introduction of new financial technologies (fintech). Recently, the idea of expanding the scope of «green» financing through the use of new financial technologies, including digital finance (digital finance) to mobilize small and medium investors and provide loans to small companies. To achieve this goal, the Sustainable Digital Finance Alliance was established at the annual MEF in Davos in 2017, working with UNEP on online fundraising projects to finance low-carbon production. A number of new technologies are currently being used, including the introduction of blockchain technology, the Internet of Things and artificial intelligence.

The practical experience shows the strengthening of the reform of the financial system, which supports the transition to sustainability in the real economy: countries are gradually beginning to combine actions in the financial system in order to achieve broad national goals for sustainable development and climate change. Due to a number of tactical steps taken in response to minimizing risks or solving specific environmental problems, the transition to a more strategically oriented policy of «green» development is beginning.

The main purpose of greening and «greening» the financial system is to mobilize and increase the motivation of public and private capital to invest in industries that ensure sustainable development, because without this all the planned environmental measures will become a regular declaration. However, so far the real achievements in the transformation of global finance, taking into account the principles of sustainable development, are insignificant. There are both objective barriers at the macro and micro levels, and subjective ones - a lack of political will to change. And international

cooperation on these issues is still at an early stage of its development, which includes mainly the exchange of experience and coordination of actions. At the same time, there are more and more reasons to believe that in the long run the trend towards greening international finance will become irreversible, despite the fact that its dynamics will most likely be non-linear, with periodic ups and downs characteristic of global development. economy in general.

According to the UNEP project, the new economic approach should be enshrined in a new agreement between the governments of the New Global Green Deal, which will contain key ideas for building a «green» economy. UN experts have formulated «green» responses to the global economic crisis and reduced access to food and energy resources. These answers are measures to implement a «green» economy, implemented in the relevant areas of transformation [11].

The EU currently has a number of sophisticated innovation programs that already contribute to the greening of the EU economy. These include the Roadmap for the Transition to a Competitive Low Carbon Economy (NEE) by 2050, the European Energy Efficiency Plan to 2020, the Roadmap for Energy Development to 2050, the Roadmap for the Transition to a Resource Efficient Europe, and the Environmental Technologies Action Plan (ETAP). The Competitiveness and Innovation Framework Program (CIP), the Research and Technology Development Framework, the Innovation and Regional Development Program, the EU Circular Economy Action Plan (2015), etc.

Balanced mobility and efficient use of energy and materials have been identified as priority areas for ensuring the transformation of the European economy on a green basis. In addition, according to a study by the International Labor Organization, «greening» the economy provides new opportunities for business and employment, stimulating investment and innovation. However, the effective implementation of a green economy requires intensified efforts to strengthen national strategies that promote clean technologies and green jobs.

Ukraine, like most countries, has adopted the concept of «green» growth, which is based on knowledge and innovation, advanced technologies, energy efficient production lines, social and environmental progress, because it is the «green» economy will facilitate the transition to inclusive sustainable development. The issue of transition to the model of sustainable development is a priority for Ukraine, especially given the existing socio-economic development, insufficient technological level of industrial production, low energy efficiency of the vast majority of industrial enterprises and housing and communal services. This decision was significantly influenced by the negative geopolitical situation (military actions in eastern Ukraine), which

in turn forced a revision of the state policy on carbon energy consumption.

The Association Agreement between Ukraine and the EU has also been an important reason for adopting a «green» course, as its provisions oblige Ukraine to harmonize national legislation with European legislation on sustainable development. Thus, part 2 of Art. 289 stipulates that «the Parties recognize the importance of taking full account of the economic, social and environmental interests not only of their respective populations but also of future generations and ensure that economic development, environmental and social policies are supported jointly» [12]. This Agreement provides, inter alia, for cooperation in the field of development and maintenance of renewable energy, taking into account the principles of economic feasibility and environmental protection.

The Ukrainian government has implemented and is trying to reorient its economy in the direction of «greening», for which a number of fundamental and strategically oriented documents were adopted, in which the priorities of economic development are environmental protection, industrial modernization, innovation and resource conservation and energy saving and development. energy sources (RES). In 2015, the National Action Plan on Energy Efficiency for the period up to 2020 was adopted. [13], in 2017 the Energy Strategy of Ukraine for the period up to 2035 - security, energy efficiency, competitiveness [14] was approved, and on July 18, 2018 the Strategy of low-carbon development until 2050 was approved [15].

The transition of our state to a «green» economy is carried out in the appropriate segments and with the use of certain tools. In the Ukrainian economy there are several segments of «green» growth (Fig. 2).

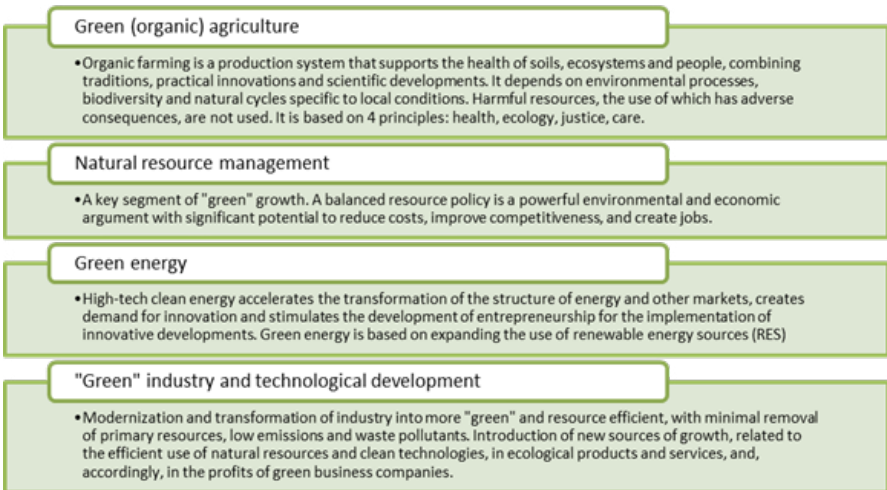


Fig. 2. Segments of «green» growth of the Ukrainian economy

The theoretical basis underlying the concept of a green economy requires integrated approaches and significant long-term investment in economic sectors that prevent the development and spread of environmental threats. Among them: the renewable energy sector, low-emission transport, energy-efficient construction, «clean» technologies in production, waste management, sustainable agriculture and forestry.

«Green» technological development. It is known that investments in innovation and R&D directly affect the resource efficiency of the economy, contribute to the transition to a «green» economy. In Ukraine, the number of new technological processes introduced into production increases every year, in particular new or significantly improved low-waste, resource-saving ones, while the share of industrial enterprises that introduced innovations (products and / or technological processes) in the total number of industrial enterprises decreases (Table 2).

**Table 2**

*Introduction of innovations at industrial enterprises in Ukraine*

Indicator	Years					Deviation 2019/2018		Deviation 2019/2015	
	2015	2016	2017	2018	2019	+/-	%	+/-	%
Share of the number of industrial enterprises that implemented innovations (products and / or technological processes) in the total number of industrial enterprises,%	15,2	16,6	14,3	15,6	13,8	-1,8	-	-1,4	-
Number of new technological processes and units introduced into production	1217	3489	1831	2002	2318	316	15,78	1101	90,47
Of these, new or significantly improved low-waste, resource-saving processes	458	748	611	926	857	-69	-7,45	399	87,12

*Source: systematized and calculated by the author based on [16]*

These tables confirm the lack of a clear trend in the intensification of innovative activities of Ukrainian industrial enterprises for the introduction of resource-saving low-waste technologies.

Organic agriculture, as an important segment of «green» growth

in Ukraine, is only developing, as the demand for such products among Ukrainian consumers is low due to its relatively high cost, but among European consumers it is in demand, motivating to increase organic production. In 2019, the total area of agriculture land, which have the status of organic and transitional period, amounted to almost 468 thousand hectares (1.1% of the total area of agricultural land in Ukraine). At the same time, 617 operators of the organic market worked, of which 470 were producers of agricultural products [17]. Under modern conditions in Ukraine, the domestic consumer market of organic products is expanding due to the main supermarket chains. Key organic products produced in Ukraine include cereals, cereals, milk and dairy products, meat and meat products, vegetables and fruits. Ukrainian organic products are supplied mainly to the markets of EU member states. In 2019, Ukraine ranked 2nd among 123 countries in terms of imports of organic products to the EU (in 2018 it ranked 4th). During 2019, 3.24 million tons of organic agri-food products were imported to the EU, and more than 10% - of Ukrainian origin, and Ukrainian imports to the EU increased by 27% - from 265.8 thousand tons in 2018 to 337.9 thousand tons in 2019 [17]. According to Organic Eprints, Ukraine is the most important supplier of organic products to the EU from the European continent. In the structure of imports, 70% are grain crops, and 15% - oilseeds (oilseeds, except soybeans - 10.8%, soybeans - 5%). The largest countries consuming organic products from Ukraine are the Netherlands, Germany, USA, Switzerland, Italy, Great Britain, Austria, Poland, Czech Republic, France, Hungary, Romania, Belgium, Bulgaria, Lithuania, Canada and Denmark [16; 17].

Green energy. Note that the «landscaping» of agriculture involves not only the production of organic products, but also the cultivation of energy crops and their use for energy purposes - for the transition to biofuels. Thus, on the one hand, Ukraine strengthens its competitiveness in European markets by exporting products, and on the other hand, it reduces the need for traditional energy sources, contributing to the country's energy security.

The transition to sustainable development and «green» growth can be evidenced by increased energy efficiency, reduced energy intensity of GDP, etc., because carbon, energy and resource intensity of production and consumption is one of the key indicators of «green» growth.

Over the past few years, Ukraine has made significant efforts to modernize and reform its own energy sector and related markets. Energy efficiency and development of RES in Ukraine have become a guarantee of energy sovereignty and national security of the state. And joining the global climate agreement has given the country new opportunities to implement a strategy of «green» growth in Ukraine, transforming the resource-dependent and energy-intensive model of the economy into an innovative and energy

efficient one.

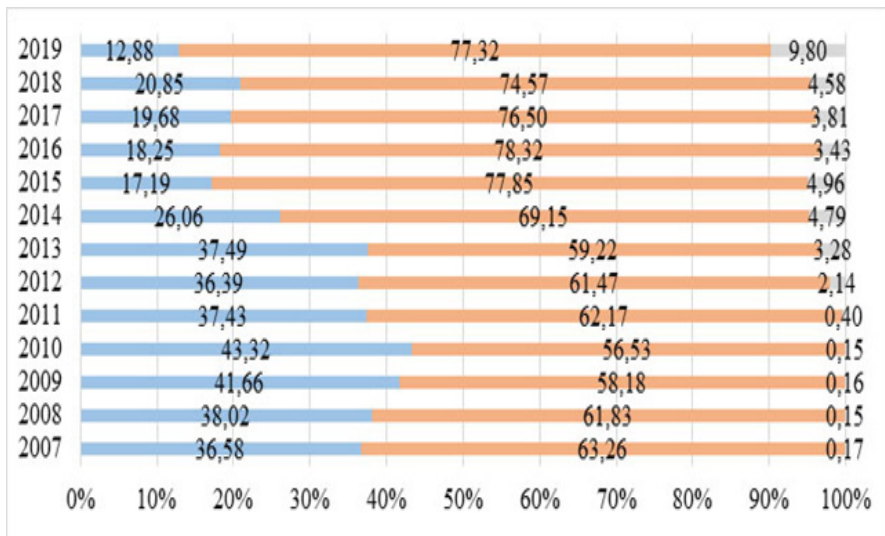


Fig. 3. The structure of RES in Ukraine by origin in 2007-2019, where the first digit is hydropower, the second digit is biofuel energy and waste, the third digit is wind and solar energy

Source: calculated and illustrated by the author based on [16]

Today, there are dozens of RES-powered power plants in Ukraine, but the country still lags far behind the leading European countries in terms of their capacity. Despite the growing share of RES, it still remains much lower than the world's leading countries. The structure of energy supply from renewable sources is dominated by biofuel and waste energy, hydropower - in second place, and wind and solar energy - has the lowest share. Despite the lag in the supply of renewable energy from many countries around the world, in recent years there has been a positive growth rate. Thus, in 2019, the total supply of energy from renewable sources compared to the previous year increased by 1.07%, in 2018 - by 10.11%, in 2017 - by 8.05%, in 2016. - 33.93% [16]. Thus, despite the constant increase in electricity production from RES, the share of alternative energy sources (wind, solar, hydro) in electricity generation is kept at a negligible level - less than 2%. Transformation of Ukraine into a powerful player in the market of «green» energy is possible not only in the conditions of deepened cooperation between government agencies and producers, but also through increasing investment in energy sector technology.

Natural resource management. The main barriers to efficient use of resources are, in particular:

- use of obsolete technologies and equipment, which causes a high level of loss of resources in the chain from production to final consumption and their inefficient use;
- lack of motivation of business entities to implement the latest, for example, resource-efficient technologies and environmental innovations;
- low level of access of enterprises to environmental loans and investments;
- imperfect waste management system, which complicates the transformation of waste into an additional resource and source of growth.

Modernization of production and structural transformations are hampered by the systemic problems accumulated over the years, in particular:

- the predominance of export raw materials and clans that resist the transition to international standards of energy and resource efficiency;
- inefficient tax policy that stimulates the development of raw materials industries and speculative services, as well as the minimization of tax liabilities;
- inefficient system of budget support, which contributed to the consumption of subsidies issued to agriculture and extractive industries;
- high level of burden of social benefits on economic activity, the mismatch between wage dynamics and labor productivity.

In the business environment, the dominant model remains to stimulate quantitative economic growth at any cost, typical of the early stages of industrial development, on the principle of «growth now, and purification - then.»

It should be noted that most of the considered «problems, barriers, obstacles and inhibitions» are directly related to or are derived from the imperfection of the system of regulations that should provide regulation and incentives in this area.

The development of Ukraine's «green» economy is characterized by a significant number of problems and obstacles of various kinds. Thus, the following problems and obstacles are identified, which do not allow to effectively implement and promote the concept of «green» economy, in particular:

- shortage of own financial resources;
- lack of the necessary infrastructure for the widespread introduction of modern technologies;
- lack of modern legal framework aimed at «greening» the country's economy;
- shortcomings of the management system both at the national and regional levels;
- the desire of owners to earn on the rapid sale of raw materials and semi-finished products without investing in complex and environmentally

friendly production.

Problematic issues related to the regulatory framework can be divided into two main groups:

1) related to non-compliance (ignoring) or insufficient implementation of a number of already adopted regulations, including the national level (laws, codes);

2) related to the lack of regulatory framework in certain areas, such as accounting and regulation of greenhouse gases.

Thus, for the accelerated «greening» of the Ukrainian economy, all its segments, it is advisable to use the tools of «green» modernization, recommended by relevant international institutions, tested by developed countries, but taking into account national characteristics. This list includes economic instruments such as taxes, emissions trading schemes and the abolition of subsidies; as well as legislative measures, including setting standards. Non-economic measures include voluntary actions and tools of influence based on information.

Thus, the introduction of the concept of «green» economy is an important component of the process of moving the national economy and the country as a whole towards sustainable development, achieving which requires a consistent abandonment of overexploitation of natural and energy resources and search for more progressive and innovative business models. Thus, the task facing Ukraine is the transition of the national economy to a «green» model of development based on sustainable production and consumption, efficient use of resources, as well as promoting business activities in the way of resource- and energy-efficient, environmentally friendly production.

It is worth noting that at the present stage the process of transition to sustainable development, both globally and nationally, is incomplete, especially due to the growing tendencies of protectionism in the world, when each state defends its own interests and goals, guided by economic components. At the same time, we believe that the implementation of the foundations of sustainable development at the national level is possible under the conditions of overcoming economic needs, addressing today's environmental challenges and meeting social expectations. This process will create the preconditions for the implementation of relevant treaty initiatives at the international level.

Despite Ukraine's international commitments, participation in various UN activities and programs in the field of sustainable development, numerous attempts to establish bodies responsible for the implementation of the concept, the institutional environment is at a very low level. This is evidenced by international rankings, in which Ukraine's position can be described as below average. Problems of institutional support for sustainable development of Ukraine need to be effectively addressed.

Therefore, the main areas of intensification of the transition to a «green» economy on the basis of sustainable development are: raising public awareness of the need to implement relevant concepts; creation of bodies of state power responsible for the implementation of the concept of sustainable development and within local self-government bodies; establishing cooperation at the international, national and micro levels; development and practical implementation of programs, strategies, plans for sustainable development based on positive world experience; monitoring and evaluating the effectiveness of activities in the direction of sustainable development of Ukraine; active promotion of sustainable development ideas in scientific, educational, business circles, etc.

Thus, the «green» economy is the foundation for the implementation of the concept of sustainable development based on more efficient resource and energy consumption, reduction of CO<sub>2</sub> emissions, reduction of harmful effects on the environment and the development of a socially integrated society. However, «greening» the economy requires «reformatting» current and future investments, as well as additional costs beyond the conventional approach, developing international strategies and scenarios for «green» development.

Ukraine has chosen a course of «greening» the economy on the basis of sustainable development. There is a development of «green» (organic) agriculture, increasing the supply of energy from renewable sources, increasing investment in innovation and research and development, which allows to increase resource efficiency, implement low-waste, resource-saving processes. There is a «reorientation» from investing in fossil fuels, resource-intensive and polluting industries and technologies to the development of «green» energy sources, energy saving measures, environmental technologies and low-carbon infrastructure.

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## **STRATEGIC ASPECTS OF THE REFORMING OF HEALTH INSTITUTIONS ON THE CASE OF VINNYTSIA REGIONAL PSYCHIATRIC HOSPITAL №2**

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In recent years, the system of financing of health-care institutions has been reformed, including granting them the status of communal non-profit enterprises and introducing cooperation with the National Health Service of Ukraine. The reform has necessitated a clear understanding of the purpose of each institution in the health-care market, its strategic advantages and opportunities for development.

Health care facilities, while being budgetary institutions, did not pay sufficient attention to the need for their own development and constantly complained about the lack of State and local funding. The reform forces the management of medical enterprises to build a clear strategy for their own development.

Let`s elaborate a strategy for the development of a typical municipal non-profit enterprise on the case of the institution «Vinnytsia Regional Psychiatric Hospital 2», analyzing the current state of the establishment, conditions and work carried out, related to the organization of compulsory treatment in a special institution.

The main advantages of the current enterprise include location, high levels of support (human and available technical) resources.

The main problems are insufficient funding for the creation of appropriate conditions for the application of compulsory medical measures (hereinafter CMM) in hospital conditions for patients who have committed socially dangerous acts (hereinafter SDA)

In order to solve the existing financing problems, specialized medical posts have been optimized and salary costs have been reduced. There is a need to insulate facilities and upgrade power grids in order to further save energy costs.

In order to ensure an effective adaptation to the new system of financing of medical reform in 2020, key strategic directions were chosen, such as follows: the ensuring a high level of safety; increasing the level of satisfaction of patients; optimizing the activity of the institution.

Within these strategic directions, we propose to choose the main initiatives by which the enterprise will be able to provide a high level of treatment and efficient use of available resources: energy efficiency; Cooperation with the Ministry of Social Policy to resolve vital social and welfare issues in the application and termination of the CMM for this category of patients and to provide legal support; opening of an infectious disease department; distribution of patients by gender.

To better understanding the essence of the proposed strategy, let's present key performance indicators of the institution.

MNE «Vinnytsia Regional Psychiatric Hospital 2» serves residents of Vinnytsia and other regions. 27 patients were admitted on the basis of court decisions during 2019, and in the first half of 2020 there were 23 patients.

As of 2019, patients were served by 189 workers, of which the number of medical staff positions was 21.25, but physically there were 13 doctors. More detailed information is the following:

- the actual staffing of medical staff positions by individuals was 61%
- staffing of the average staff of 112% (excess due to employees who are on maternity leave);
- there is an insufficient staffing of medical personnel.

In total, there were 120 beds in the medical departments as of January 1, 2020, and as of July 1, 2020 - 110 beds. In total, there were 120 beds in the medical departments as of January 1, 2020, and as of July 1, 2020 there were 110 beds.

More detailed information on the use of bed places is the following:

- “the work of the bed” in 2019 was 237 days a year;
- the average duration of treatment is 4733 days.

The package of medical services of the National Health Insurance Fund does not include coercive measures of a medical nature. Such services are paid for by the transitional medical subvention of the Ministry of Health.

Basic data on the equipment is the following:

- the level of equipment does not differ depending on the department;
- sufficient level of equipment in the laboratory.

Basic data of the laboratory is the following:

- in 2019 the laboratory conducted 1113 analyzes;

- available in the laboratory equipment needs updating and retrofitting.

The institution has a number of non-medical departments, in which together there are 20.5 rates of specialists (accountant, economist, etc.) and 41.75 rates of other personnel (driver, cook, driver for washing and repairing overalls, etc.). Now the work in these departments is automated, but with an insufficient amount of computer and software.

Basic data on the infrastructure of the institution is the following:

- the total area of all premises - 16877.6 sq.m, of which 15332.2 sq.m (90.8% of the total area of the institution) are medical areas and 1545.4 sq.m (11%) are non-medical;
- due to the reorganization of the institution, (reduction of beds) part of the premises of the institution (medical departments) is not used, but they are heated in winter.
- small areas are leased;
- workshops are not used, so they were closed to save utility costs;
- the premises are not energy efficient, as only 29.5% of all windows of the building are made of metal, facades, plinth, and roof are not insulated, there are no automatic regulators on the heat units;
- buildings with rooms for receiving patients are equipped with ramps;
- elevators are not used (due to lack of funding).

The main sources of funding are the following: state (68.0%) and local (32.0%) budgets.

The majority of the funds received are spent on staff salaries (61.1% - 2019, 60.6% -2020) and utilities (22.2% - 2019, 24.9% - 2020). Other expenditures (16.7% in 2019, 14.4% in 2020) include expenditures on medicines and dressings, food, other services, payments to the public, and other expenditure items.

Let us carried out a SWOT analysis of the «Vinnytsia Regional Psychiatric Hospital 2».

We will focus separately on the internal (Fig. 1) and external environment (Fig. 2) of the institution, taking into account the purpose and objectives of the study.

Let`s start with the strengths of the institution. A successful location of the institution outside the city (at a distance of 5 km), which makes it impossible and prevents direct interaction of socially dangerous persons with residents of the city is a positive factor. An institution has a developed infrastructure and a separate territory.

The buildings of the institution are adapted for the use of CMM. To solve the problem of irrational and inefficient energy use of premises has begun and continues the process of optimizing, including replacement of lighting, window units with energy-efficient ones. The institution is staffed with highly specialized specialists in the field of psychiatry for the provision

of CMM. for the patients. The relatively high level of bed occupancy (345 days a year), which indicates the effective use of the bed capacity. Medical, social, legal and rehabilitation services are constantly being studied and improved.

	<b>Positive impact</b>	<b>Negative impact</b>
<b>Internal environment</b>	<p style="text-align: center;"><b>Strengths</b></p> <ul style="list-style-type: none"> <li>• high level of competence of employees in professional and legal aspects of work with stationary (CMM).</li> <li>• actual compliance with the conditions of stay according to the Rules of stay of patients on (CMM).</li> <li>• high level of beds occupancy</li> <li>• a wide range of provided medical, social, and legal rehabilitation services</li> <li>• high level of staffing by paramedics</li> <li>• optimization was carried out with the transformation of the hospital and its staff into a special institution for the provision of psychiatric care in the use of (CMM)</li> <li>• felicitous location</li> <li>• compact location of departments</li> </ul>	<p style="text-align: center;"><b>Weaknesses</b></p> <ul style="list-style-type: none"> <li>• a large share of utility costs</li> <li>• Insufficient number of doctors</li> <li>• non-energy-inefficient building</li> <li>• obsolete medical equipment</li> <li>• lack of a laboratory</li> <li>• no infectious department</li> </ul>

Fig. 1. Analysis of the internal environment of MNE «Vinnytsia Regional Psychiatric Hospital №2»

	<b>Positive impact</b>	<b>Negative impact</b>
<b>external environment</b>	<p style="text-align: center;"><b>Opportunities</b></p> <ul style="list-style-type: none"> <li>• the ability to get an additional flow of patients with the increasing capacity of the institution</li> <li>• development of the local regulatory framework</li> <li>• modernization of the sanitary-epidemic regime taking into account the epidemiological situation</li> <li>• routing of patients</li> <li>• formation of an infectious department</li> <li>• distribution of department by gender</li> <li>• optimization of unused premises</li> </ul>	<p style="text-align: center;"><b>Threats</b></p> <ul style="list-style-type: none"> <li>• medical reform that does not take into account the needs of the special contingent</li> <li>• insufficient level of funding for the institution</li> </ul>

Fig. 2 Analysis of the external environment of MNE «Vinnytsia Regional Psychiatric Hospital №2»

One of the shortcomings is the high percentage of the agency's expenditure on utilities. Such costs are like the following: outdated and imperfect equipment, closure of the laboratory during the reorganization,

the absence of an infectious disease department, not creating conditions for better performance.

Among the capabilities of the institution is the fact that the institution has a favorable location and available human and technical resources that can be used for cooperation with neighboring regions. As well as the proximity of the regional center can be considered as an opportunity to attract highly specialized specialists in the treatment process.

The institution can increase the efficiency of work by improving the work of the laboratory. This can be done by purchasing automated analyzers, allowing high-level analysis, that will improve the overall quality of medical services.

Much of the institution premises are not used for its intended purpose, but it is possible to increase the number of beds or rent the premises hospital. Among the threats is the risk that the changes that occur during the medical reform can adversely affect the activities of the institution. Since there is no clear funding mechanism that directly affects the work quality of the hospital.

Let's note that the implementation of selected measures is based on a systematic approach using the principles of strategic management, including the priority of selected areas, justification of problem-solving mechanisms, system resources, planned implementation of planned activities, command principle, inclusion and initiative of the whole team, constant informing the team on the results of transformations, as well as providing external conditions for the transformation of the planned Ministry of Health of Ukraine in the Concept for the development of mental health care in Ukraine for the period up to 2030.

Thus, the mission of the enterprise reflects the general mission of applying inpatient coercive measures of a medical nature at the interregional level, namely - providing residents of Vinnytsia region and other regions for whose services a transitional subvention of the Ministry of Health and specialized medical, social and psychological rehabilitation.

The enterprise sees itself as a specialized institution for the providing psychiatric care in the hospital for all types of CMM, where the individual rehabilitation programme is constantly improved and patients receive free legal assistance, general and vocational education in educational programs, taking into account the level of intellectual development, employment opportunity.

As a result of the continued transformation of the departments, medical care will be provided during the transition period to bring the inpatient conditions of the (CMM) in line. As for now, it is impossible to assess the economic impact of implementing this option, as it is a qualitative result aimed to improve the provision of assistance to persons with mental and

behavioral disorders who are in conflict with the law and have committed socially dangerous acts.

Also, the implementation of this measure includes the following:

- quarterly monitoring of the use of funds;
- bringing the material and technical equipment of the institution and its territory into compliance;
- development of a model of social and labor rehabilitation of patients;
- carrying out of the state standardization on the assignment of the certificate of system of management of quality.

During the development of the strategy, the following strategic directions of the institution's development were identified: increasing the level of patient satisfaction and optimizing the institution's activities, ensuring a high level of staff safety in performing functional duties by serving the special contingent. Based on this, a number of initiatives have been developed, the implementation of which will ensure the achievement of the institution's strategic goals.

The major strategic initiatives should also include the following:

1. Ensuring a high level of security in the performance of functional duties by:

- assistance in bringing to a modern level of technical equipment of a special institution;
- testing of staff in the framework of the prevention of infectious diseases.

2. Increasing patient satisfaction by:

- improvement of navigation in the hospital (equip with information signs);
- computerization of processes reflected on paper;
- conducting an annual audit of existing equipment and its condition.

Optimization of the institution should take place by performing the following measures: the arrangement of the lighting system of corridors and domestic premises (toilets) with motion sensors; installation of a system of automatic regulation of temperature and consumption of the heat carrier depending on temperature; replacement of lighting lamps with energy-saving LED lamps; adjustment of hydraulic modes of the heating system; installation of taps-dispensers for a shower; cleaning the heating surface of capacitive water heaters; installation of aerators on water taps; modernization of the facade of the building and insulation of the roof of buildings; organization and reconstruction of supply and exhaust ventilation systems; replacement of windows with energy efficient ones.

As a result of the implementation of these measures, additional resource savings are also expected. Estimated savings are shown in table 1.

Thus, measures of strategic improvement of activity of MNE «Vinnytsia regional psychiatric hospital №2» based on influence on factors of internal

environment are developed. The implementation of our proposed measures will increase the efficiency of the institution and optimize the management system.

**Table 1**

*Expected resource savings due to the implementation of measures to optimize the activities of MNE «Vinnytsia Regional Psychiatric Hospital №2 Vinnytsia Regional Council»*

<b>Name of the resource</b>	<b>Basic consumption</b>	<b>Projected consumption</b>	<b>Expected savings</b>
Electricity, kW	625972	438180	187792
Thermal energy, thousand kW	2540640	1321133	1219507
Cold water supply, m3	17434	14041	3393

The analysis performed allows us to state unequivocally that the change of the status and financing model itself is more likely a threat to health care institutions, since the management of enterprises is not ready for market conditions of existence. That is why, the position of the leadership on the adoption of strategic responsibility is so important. In addition, we note that we examined the regional hospital while the situation in the district and peripheral institutions is much worse.

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# **SPECIFICS OF PROJECT MANAGEMENT IN THE CONTEXT OF COMPETITIVE ADVANTAGE, SUSTAINABLE DEVELOPMENT, DECENTRALIZATION AND ECONOMIC SECURITY**

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Project management is undoubtedly necessity in today's management conditions. The unstable and changeable environment of today dictates that organizations need to find new and untypical ways of managing projects. Primarily, they must meet the criteria of flexibility and willingness to change, but at the same time - be clear and consistent.

A project management methodology is a clearly defined and scientifically proven combination of logically related practices and methods that enable effective planning, implementation, monitoring and control, and bringing a project to successful completion [5; 7].

The right methodology, properly chosen and rigorously followed, provides a solid guarantee that the project work will be completed on time, within budget and according to specifications. There are various methods in project management that can be used in different types of project management. In general, they can be divided into traditional and modern approaches (agile).

The most common modern project management methodologies include the following: RMVOC; ISO 21500; PRINCE2; SRM; SSRM; Six Sigma; Scrum. Lets analyze their advantages and disadvantages (Table 1).

The economic organization of the country looks at the coexistence of three main sectors - public, private and third. The third sector consists of non-profit organizations working in the gaps left unanswered by the other two.

In order to carry out their activities, non-profit organizations» acquire ownership of funds and other property transferred to them by their founders, members or by the State, acquired from admission and membership fees, donated by citizens, enterprises, institutions and organizations, as well as property acquired from their own funds or on other grounds not prohibited by law» [1].

**Table 1***Advantages and disadvantages of project management methodologies [9, 10]*

<b>Methodology</b>	<b>Advantages</b>	<b>Disadvantages</b>
RMVOC	The most elaborate; universal; methodology, a considerable amount of documentation detailing the algorithms for the application of project management tools	Difficult to implement methodology; includes many generalised characteristics
ISO 21500	Ability to integrate with other ISO standards; more accessible and simple methodology	No guidelines on the management of projects docking, programmes and project portfolios
PRINCE2	Attractions to knowledge consolidation; Using the project product structure as a basis for project planning	Difficulty in obtaining up-to-date documentation
SRM	Detailed time planning; clear control of the project work by the schedule	Complication of modifications to the timetable (need for a complete rescheduling of hours)
SRRM	Reducing the risk of the project not being completed on time and within the planned budget	The need to extend the project realization time and reserve resources through the creation of relevant buffers
Six Sigma	Substantive minimisation of deviations project characteristics of realization of project, improving the quality of project management	The methodology is more adapted to the management of project product defects, while the management of parameters of quality of project solution is complicated by the need for a substantial amount of statistical data
Scrum	Practical methodology; customer-orientation; simplicity; time and cost savings in work coordination	Inability to plan; increased costs for recruitment, training and motivation

Despite on the name of the organizations, which emphasizes the peculiarity of the lack of profit as a mission, it is important to note that, according to the law [8], non-profit organizations have the right to make a profit for their activities.

This is necessary to ensure their sustainability as well as their ability to invest and achieve their key objectives.

A non-profit organization is thus very similar in its legal status to a business organization. As a business structure, it is characterized by freedom and autonomy in such matters as: the shaping of activities program, selecting clients, attracting material and technical human and informational resources. At the same time, it has significant differences from a business organization, the main one being the absence of the objective of making a profit in order to redistribute it among its members.

As non-profit organizations seek to fill social needs that traditional companies cannot satisfy - they need to adopt new approaches to solve the challenges. In turn, effective project management presents a high potential for these organizations to gain a unique competitive advantage.

In fact, the nonprofit sector is becoming increasingly dependent on project realization to achieve its strategic goals. Faced with the problem of using limited resources to achieve ambitious goals, nonprofit organizations often turn to the management practices of the business sector. However, adapting the processes used in the business sector without study their effectiveness can have detrimental consequences.

Unlike businesses, non-profit organizations start with a mission, i.e. a clear definition of the following questions: Who are we? Why do we exist? What are we doing? For whom? They do not have financial assets, but only manage what their funders have entrusted to them.

Public and communal organizations start from a desire to satisfy needs, not from an organizational structure - this is the fundamental difference between them. In this regard, the role of professional management of an organization and, in particular, its resources, increases considerably [4].

All project organization activities within non-profit organizations go through four stages (Fig. 1).

The general technology of project management includes: formulation of project objectives, project justification, development of project structure; identification of the scope and sources of funding; costing; timing of project activities, project implementation schedule calculation and allocation of resources; selection of project team; quality management; risk management; project realization organization, preparation and signing of contracts; communication with customers and consumers of the project products; monitoring [3].

It is similar regardless of the sector of activity.

However, the difference in project management in the commercial and non-commercial sectors should be identified according to the main criteria (Table 2).

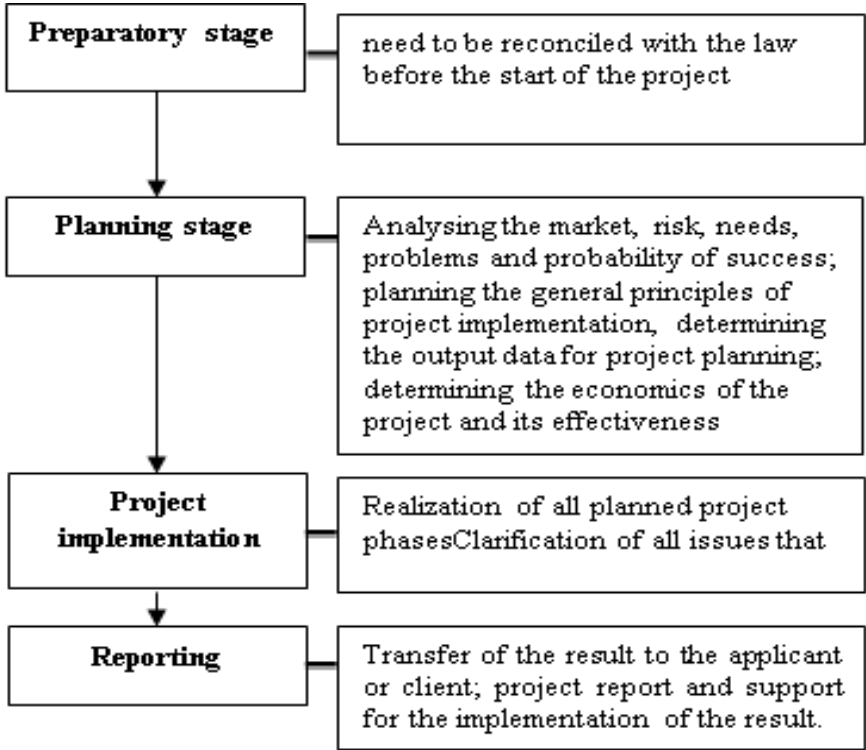


Fig. 1. Non-profit organizations go through four stages

**Table 2**

*Differences in project management in the commercial and non-commercial sectors [3; 6; 9]*

<b>Criterion</b>	<b>Commercial sector</b>	<b>Non-profit sector</b>
Responsibility to	Shareholder / Top Manager	Volunteers, donors, the public, clients, partners
Human resources	Professional paid staff	Volunteers, professional staff (often underpaid)
Income	Based on profit	Contributions, grants, budget, profit from non-profit business
Time resources	Mostly constant	Changeable
Knowledge base	Purposeful	Changeable

Stakeholders of non-profit organizations projects are also different from those of business structures projects. There is a denoted specificity

in the selection of the main participants in the project. In the first case, the initiator is usually the organization itself. The client can be a local authority, a business entity, a higher executive authority or others. The client has requirements regarding the end result. The project of a public organization is usually financed by sponsors, whereas enterprises can implement projects on their own account. Individuals, charitable foundations and other institutions may act as sponsors. The project manager coordinates the activities of participants and staff [2].

To manage projects effectively, non-profit organization managers should ask themselves and the project team the following questions:

Is the project good for society?

Do you have all the tools you need to get the project?

Does the team have the necessary skills?

Are the tasks and responsibilities of each team member clearly defined?

Which financial and non-financial risks may arise in the project?

Is the scope of the project defined correctly?

Does the project contribute to self-sufficiency?

Do all stakeholders have the necessary information about the project?

Does the project adhere to the legal framework?

Does the project create a sense of involvement?

Because projects link the present and future of organizations, they have the potential to transform today's goals into realistic future outcomes. The ability to ensure sustainability of programs or projects is a critical issue at all levels and in all environments. Unfortunately, when projects are phased out due to the expiry of their funding, the hard-won improvements may disappear. In order to maintain positive outcomes for society, stakeholders need to understand all the factors that contribute to project sustainability. By being aware of these critical factors, stakeholders can strengthen their capacity for sustainability and calculate their efforts in a way that ensures long-term success [2].

The concept of sustainable development in the context of project management has evolved steadily over the past decade, illuminating different perspectives on the foundations on which project management processes and procedures in organizations should be based. The arguments presented by academics point to the existence of different ideas on the foundations of sustainable development in the context of project management. As no study has lumped the different principles under one framework, we suggest that all eight principles identified in the literature should be considered equally.

Domestic organizations can face numerous barriers in implementing sustainability principles at the tactical level of a project. So, further research can be based on assessing and finding ways to eliminate these barriers and developing prescriptions, and recommendations to overcome them.

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## **THEORETICAL ASPECTS OF FINANCIAL SECURITY OF THE ENTERPRISE: ESSENCE, COMPONENTS, THREATS**

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In modern economic conditions, the financial results of the enterprise are determined primarily by its financial capabilities. With the further deepening of the economic crisis in the country and in the world, the survival of economic entities is becoming the highest priority of the top management.

The statistics of unprofitability of Ukrainian enterprises is quite disappointing; the number of unprofitable enterprises in the total number is 42.3%, which is a very high figure, which shows that almost every second enterprise has insufficient amounts of financial support. The number of bankrupt enterprises is growing; such data indicate the financial state deterioration of enterprises. Therefore, ensuring proper financial security of enterprises in the current economic environment should become a priority of financial strategy and business practices.

Sustainable development of the enterprise is impossible without a reliable system of its financial security. The company's ability to grow steadily, efficiently and actively conduct business is determined by its resistance to internal and external negative factors (threats) that affect its potential, which characterizes the financial security of the enterprise. This fact encourages entrepreneurs to pay special attention to the development and implementation of measures to ensure the financial security of enterprises and organizations.

In much of the scientific work, the concept of financial security is considered in the context of economic security, however, it should be noted that this concept should have an independent definition. The issue of studying and ensuring financial security is covered in the works of both domestic and foreign scientists, in particular I. Blank [1], T. Vasylytsiv [2], M. Yermoshenko, K. Horyacheva [3], L. Donets [4], T. Ivanyuta [5], O. Ponomarenko [6] and others.

Scientific views on the concept of financial security of the enterprise differ. Thus, N. Poida-Nosyk [7, p. 168] understands under the concept of financial security a complex characteristic of the system that reflects the level of protection of financial interests of the business entity in a dynamic

environment from the negative impact of external and internal financial threats and its ability to maintain financial stability and balance through effective use of financial potential to ensure sustainable growth in the future. According to Yaryshko O., Tkachenko E. [8], financial security - is a component of economic security, which consists in ensuring the efficient use of enterprise resources under the influence of external and internal threats and aimed at achieving financial equilibrium of the enterprise in the long and short term. Mogylyna L. [9, p. 5-6] keeps the mind that financial security is a dynamic financial condition of the enterprise, characterized by stable protection of its priority financial interests from identified endogenous and exogenous threats and the ability to ensure the realization of its financial interests, mission and objectives, as well as its own development of sufficient financial resources.

We can conclude that most authors consider financial security as an integral part of economic security of the enterprise. According to another approach, the authors consider the financial security of the enterprise as a state that protects financial interests from identified real and potential dangers and threats that have external and internal manifestations, financial balance, solvency, stability and liquidity.

Based on the analysis, we can conclude that in most cases the concept of «financial security» is interpreted as a state, security, process, set of measures and methods, a set of certain properties and conditions, as part of economic security.

Based on the above, the financial security of the enterprise can be understood as its financial position, which is primarily characterized by the balance and quality of the set of financial instruments, technologies and services used by the entity; secondly, it is resilience and resistance to internal and external threats; third, it is the ability of the financial system of the entity to ensure the realization of its financial interests, goals and objectives with sufficient financial resources.

In our opinion, the concept of financial security of the enterprise is a synthesizing concept that combines such separate elements of such categories as «economic security» and «enterprise finance», which are sufficiently studied in the modern scientific literature, are characterized by a sufficient methodological basis that can be used in the study and research of the concept of «financial security of the enterprise». It is worth noting a thorough study of I. Blank [1], which highlighted the key characteristics of the concept of «financial security of the enterprise»:

- first, financial security is an element of economic security of the enterprise;
- second, financial security is a set of qualitative and quantitative indicators that characterize the financial condition of the enterprise, which

characterizes the level of its financial security and stability;

- third, the object of financial security of the enterprise is a set of its most important interests that require protection in the process of financial and economic activities;

- fourth, the formation of the financial security of the enterprise is influenced by external and internal factors;

- fifth, for each company the level of qualitative and quantitative parameters that characterize the protection of its financial interests will be different and depends on the financial strategy and financial philosophy of doing business;

- sixth, an important area of financial security is the creation of financial preconditions that are the basis for current and future development of the enterprise.

Based on the above mentioned characteristics, we can substantiate the conditions for ensuring the financial security of the enterprise:

- high level of coordination of financial interests of the enterprise with the interests of the external and internal environment;

- the presence of a stable financial system at the enterprise, which is able to ensure the realization of financial interests, goals and objectives;

- balance, consistency and complexity of financial instruments and technologies used by the enterprise;

- ensuring the dynamic and systematic development of the financial system of the entity.

The analysis of scientific sources on the researched subject gives the opportunity to work out the classification of approaches to definition of concept «financial security of the enterprise» (Fig. 1).

In our opinion, the features that characterize the concept of «financial security of the enterprise» are important, they include such concepts as financial condition, financial resources and interests, the degree of their protection, the level of financial stability and development of financial relations.

The financial security of the enterprise includes a number of categories, in particular:

1. The object of financial security, which means its financial activities, the security of which must be ensured.

2. The subjects of financial security are directly the heads of the institutional and middle level of management, as well as employees, in accordance with their positions and responsibilities.

3. The subject of financial security of enterprises means the activities of financial security entities, which involves the implementation of specific measures to ensure financial security, and these measures should be aimed at specific objects of financial security.

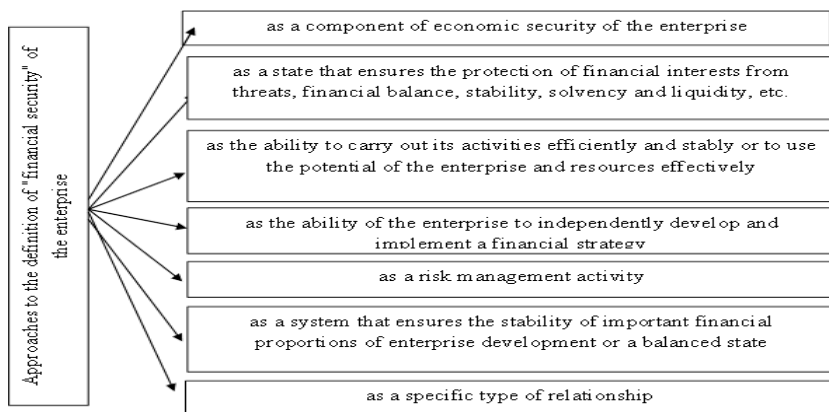


Fig. 1. Classification of approaches to the definition of «financial security of the enterprise»

4. The purpose of ensuring financial security is to constantly maintain a state of financial activity, characterized by balance, consistency and quality of all financial instruments, services, technologies used by the enterprise; in ensuring resilience to internal and external threats; the ability of the financial system of the enterprise to ensure the realization of its financial interests, goals and objectives with a sufficient level of financial resources.

5. Risks of financial security of the enterprise are dangers which can be connected with failures of certain actions taken at emergence of danger; the emergence of a certain unfavorable situation that hinders the implementation of the mission, goals, objectives and interests of the enterprise; an opportunity or situation that could lead to failure or significant deterioration of the enterprise to bankruptcy.

6. Threats to the financial security of the enterprise - a concept that is close to the danger and is one of its forms and is manifested as a danger that is at the stage of potential transition to reality; and the threat is considered as a set of reasons that pose a danger to the company and its interests, hinder the achievement of goals and mission.

Thus, threats to the financial security of the enterprise are forms of danger and factors that complicate the conduct or hinder economic activity, can lead to a violation of stability, and in difficult cases may cause the cessation of economic activity as a result of loss of solvency and profitability.

All threats to the financial security of the enterprise can be classified on certain grounds, including:

- by source: external, internal;
- by the degree of predictability: force majeure threats (circumstances), threats (circumstances) close to force majeure, predictable;

- the degree of complexity and severity of consequences: threats with high severity of consequences, threats with significant severity of consequences, threats with medium severity of consequences, threats with low severity of consequences;
- by subjects: threats from criminal structures, threats from competitors, threats from contractors, threats from their own employees, threats from the state, force majeure threats;
- by objects: threats to labor resources (personnel), threats to material resources, threats to financial resources, threats to information resources;
- by the possibility of implementation: real threats, potential threats;
- by the duration of action: temporary, permanent;
- by frequency of action: single, multiple;
- by the form and amount of losses: threats, the implementation of which causes direct damage, threats, the implementation of which will lead to lost profits.

The external threats to the financial security of the enterprise include the following: speculative transactions with corporate securities (aggressive acquisition of shares); high level of financial liabilities of the enterprise; low level of capital market development and imperfection of the legal framework for regulating the economic activity of enterprises; economic instability and financial crisis; imperfection of the economic policy of the state; price and non-price competition; illegal actions of competitors; the influence of competitors on public authorities and the possibility of lobbying their own interests; industrial espionage; raiding and illegal actions by criminal structures. Internal threats to financial security often include the following: disclosure or leakage of trade secrets; low level of qualification of employees; problems in the activities of the economic security service at the enterprise; inefficient planning of financial resources and their management.

The greatest impact on the activities has external threats, because for the company they are almost uncontrolled, it is appropriate to classify them according to the degree of unpredictability: force majeure (natural disasters, man-made disasters, etc.), and circumstances close to them, such as embargo, blockade, a sharp change in the exchange rate; circumstances that can be foreseen.

Objective threats to financial security are understood to be those that are caused by environmental factors and do not depend on the management decisions made at the enterprise, ie those that are external: economic, political, and religious. Subjective threats most often include those that are associated with conscious or unconscious harmful actions of staff, partners, suppliers, competitors.

Modern types of threats to the financial security of the enterprise include greenmail, raiding, competitive intelligence, carding.

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## ASSESSMENTS OF BUSINESS ACTIVITY AND EFFICIENCY OF THE ENTERPRISE IN THE SYSTEM OF ECONOMIC SECURITY

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Increasing the efficiency of economic activity of each enterprise has a positive effect on the state economy, the formation of local budget revenues, the level of welfare of the population. Therefore, today there is a very important problem of determining directions for increasing the efficiency

of the enterprise, among which the efficiency of production and economic activity should be the main part of developing a management project measures for the development of the enterprise. In this regard, the issue of developing a scientific base for managing the efficiency of production and economic activity of the enterprise becomes relevant.

Due to the fact that the concept of efficiency characterizes the ratio of different aspects: result and cost (cost-effectiveness), result and goals (effectiveness), result and needs (optimality), the ratio is currently proposed to be considered as parameters of efficiency. The value of each indicator determines the degree of intensity of a certain property of the result, which is important in terms of the established purpose (goals, interests, costs).

The efficiency of production and economic activity of the enterprise should be determined in order to solve two main tasks. First, to identify and assess the level of use of particular types of costs and resources, as well as the economic efficiency of production. Secondly, for economic justification and selection of the best production and economic solutions (introduction of new equipment, technology and organization of production, labour and management, investment options, etc.) [4]. The most important characteristics of production and economic activity, such as integrity, multidimensionality, dynamism and the correlation of its various aspects are reflected in the category of efficiency.

The sphere of business activity of the enterprise includes the processes of production, reproduction and circulation. Production processes ensure the implementation of tasks of preparation and development of the realization process of other services, maintenance of the production process. Work on the renewal of fixed assets, expansion and technical re-equipment of enterprises, training and retraining is related to the processes of reproduction. Circulation processes include logistics and realization of services. These processes are provided by the relevant subsystems of production and economic activity. Therefore, the significance of the problem of efficiency of production and economic activity of the enterprise necessitates the need to consider and analyze the level and scale of efficiency at the level of all subsystems of production and economic activity. This condition, according to the author, should characterize the systemic part of efficiency.

In addition, attention should be paid to the importance of ensuring the effectiveness of measures aimed at achieving environmental goals of the enterprise. There is a close, often positive, connection between these aspects: for example, minimizing the company's environmental impact has a direct positive effect on improving the quality of life and health strengthening of not only the company's staff but also the local population. That is, the socio-ecological component of production and economic activity is reflected in the conscious and motivated participation in a variety of preventive

environmental damage and irrational use of nature measures, in ensuring public, social and environmental benefits.

These conditions allow us to identify the main components of the formation of the efficiency of production and economic activity of the enterprise:

- efficiency of subsystems of enterprise activity, which is determined by the obtained results, which reflect the achievement of the goals of development of the main subsystems of enterprise activity and competitive success in the market;
- efficiency of use of certain types of resources;
- socio-ecological efficiency, which is characterized by the level of fulfillment of social and ecological obligations of the enterprise.

All types of efficiency together make a synergistic efficiency of production and economic activity of the enterprise. The presented model characterizes the efficiency of production and economic activity of the enterprise as a concept that reflects an independent process in the economy of the enterprise. It is the efficiency by the established criteria of economy, effectiveness and optimality determines not only the result but also the feasibility and usefulness of implementing measures for the development of the enterprise and achieving certain results of production and economic activity. On the basis of the generalization of the above, it is proposed to determine the efficiency of production and economic activity of the enterprise as a complex characteristic of its development, which in accordance with the criteria of effectiveness, economy and optimality reflects the level of goals achievement of production and economic activity. The implementation of controlling of the production and economic activity of the enterprise involves the formation of a system of indicators. The presence of a reasonable system of controlled indicators is an important component of success for the organization of effective controlling, which will allow you to diagnose the current state of the enterprise and its prospects for the future objectively, determine the size and direction of change, identify growth factors, develop plans or forecasts for improving the processes of use and reproduction of resources.

In modern management theory and practice, indicators are the basis for analysis, evaluation, control of the effectiveness of the enterprise activity, because it is on their basis to make management decisions. The versatility and complexity of different characteristics of the economic condition of the enterprise determines the presence of a large number of indicators. At the same time, none of them can be universal for controlling, calculating which we could unambiguously draw a conclusion regarding the activity of the enterprise.

According to Avdey O.K., the key criteria for selecting indicators for

the system are the following: compliance with targets, flexibility, logical integrity, the presence of clearly defined critical values, availability of information base for calculations, minimization of time and financial costs for calculations [1, p. 142]. Instead I. I. Stets believes that forming a system of indicators that are considered as parameters for assessing the production and economic activity of the enterprise should comply with the following requirements: indicators should reflect the goals within the management task; the system of indicators should reflect the functioning of key subsystems of the enterprise; suitability of the system of indicators for measuring the results of activities and implementation of corrective measures; comparability of indicators in the system; the clarity of the algorithm for calculating indicators [6, p. 187]. The author does not define that the indicators in the system should complement each other, not duplicate, be characterized by a high degree of analyticity and ensure effective management decisions in the future. Given the ambiguity of views and generalizing the approaches of leading experts, it is advisable to follow the principles in forming a system of indicators, which are presented in table 1.

**Table 1**

*Principles of building a system of indicators of business activity of the enterprise*

<b>The name of the principle</b>	<b>The content of the principle</b>
complexity	comprehensive characteristic of different spheres of the enterprise activity
systematic	orderliness of indicators, because the enterprise is considered as a system
representativeness	sufficiency of a set of indicators in the absence of duplication
certainty	use of reliable sources of information
comparability	summary of multidirectional in action indicators and harmonious combination
informativeness	reflection of the real financial condition of the enterprise
optimality	compliance with a certain ratio between absolute and relative indicators
controllability	the ability to influence the structure of the system of indicators in the presence of the need for such actions
adaptability	the ability to easily adjust the structure of the system of indicators in view of the change of activity direction and goals of the enterprise

timeliness	indicators should reflect the state of the enterprise in real time to prevent risk situations
clear direction	indicators must meet the needs of a particular group of consumers
positive effect	the positive result from the use of the system of indicators should outweigh the possible negative consequences and costs of its operation

*Source: created by the authors by [5; 7; 9]*

Based on the analysis of existing approaches to the selection of systems of indicators, as well as considering the radical changes in the environment and management structure there are basic requirements of the selection of indicators and the formation of the system of controlled indicators:

1. Indicators should reflect the efficiency of use of basic resources and the enterprise as a whole.

2. Indicators should be as simple as possible and not require significant consumption of time and resources to maintain them. It is necessary to compare the costs needed for the development and operation of this system and its usefulness in the future.

3. The number of main indicators should not be too large, because attention is distracted and there are difficulties in presenting them.

4. For each indicator the desired or recommended value of measurement and subsequent evaluation of the results should be specified.

5. A system of indicators should be calculated and submitted to management within a clearly defined timeframe.

6. Methods for calculating the system of indicators should not be changed for a long enough period to ensure their comparability.

Most economists believe that the economic activity of the enterprise is a complex system that includes its own set of individual subsystems that ensure its proper functioning. Analyzing different approaches to the allocation of the enterprise subsystems, we concluded that it is advisable to allocate the following subsystems to control the production and economic activity of the enterprise: production, financial, personnel, marketing, innovation and investment subsystems, because work performing within each of them is a main condition for enterprise surviving.

The main subsystem of the enterprise is the production one, because it is characterized by a high degree of influence on the production and economic activity of the enterprise and reflects the efficiency of fixed assets use in the process of creating finished products or providing services. It reflects the maximum production volumes in terms of maximum use of available resources.

The implementation of controlling over production and economic

activity is provided by the interaction with the management functions, as controlling supports them with information. The scheme of the forming process of the controlled indicators system of production and economic activity is presented in Fig. 1.

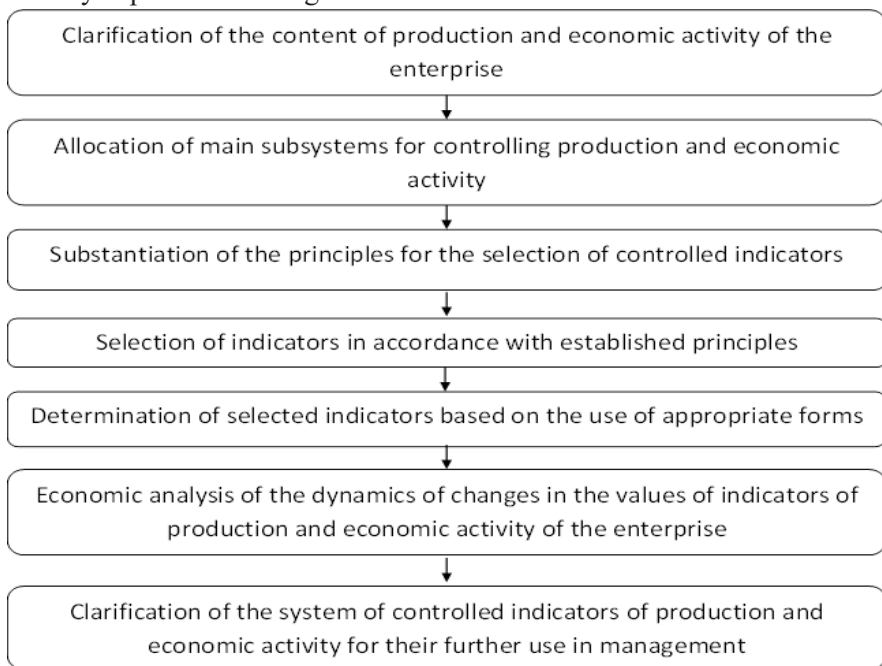


Fig. 1. The scheme of the forming process of the system of indicators for controlling the production and economic activity of the enterprise

*Source: created by the authors by [9]*

The personnel subsystem ensures personnel management, is characterized by an average degree of influence on the activity of the enterprise, as well as its operation is provided by methods and means aimed at organizing and directing to achieve the goal of personnel activity [8, p. 187].

The financial subsystem is a providing one and is characterized by a high degree of influence on the activities of the enterprise, because it is responsible for the movement of financial resources intended for the implementation of functions and tasks of the enterprise in accordance with the developed strategy. Within the framework of this system the issues related to the availability of own financial resources or the possibility of attracting from abroad are regulated [5, p. 384].

After a thorough analysis of leading experts in the field of economic analysis and management, in particular by the frequency of use of individual

indicators within each of the identified subsystems, we found that controlling production and economic activity should be based on the following partial indicators (table 2).

**Table 2**

*Indicators for assessing the subsystems of production and economic activity of the enterprise*

<b>Subsystem name</b>	<b>Key indicators of the subsystem</b>
Production subsystem	indicators that reflect the efficiency of resource use, production efficiency
Financial subsystem	indicators of liquidity, financial stability, profitability, business activity, performance of the enterprise in the capital market
Personnel subsystem	indicators of efficiency of forms and methods of work with personnel, labour activity and management of working hours, social and psychological efficiency of work with personnel
Marketing subsystem	indicators of efficiency of strategic marketing management, organization and functioning of marketing service, implementation of tactical marketing programs, functioning of marketing information system
Innovation and investment subsystem	indicators of efficiency of introduction of innovations in production and management processes, introduction onto the market of new goods or services

*Source: created by the author by [2; 3; 6]*

The marketing subsystem studies the demand and market requirements of the current time and involves a comprehensive analysis of the obtained information to improve the production and sales activities of the enterprise with a focus on the production of competitive products. This subsystem has a high degree of influence on the activity of the enterprise [8, p. 79].

The innovation and investment subsystem determines the conditions for the implementation of innovative activity and options for its providing in order to obtain investment resources. This system is characterized by a high degree of influence on the activity of the enterprise, as it is a kind of generator of ideas and their direct implementer.

This system of indicators of production and economic activity in terms of its main subsystems is sufficiently informative and reflects all aspects of the enterprise activity for effective management with minimal resource costs.

The analysis of business activity within the management system allows to ensure the adoption of relevant management decisions regarding the

search, formation and improvement of the enterprise potential in order to ensure their sustainable economic development and ensure a high level of competitiveness.

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## **EVOLUTION OF ECONOMIC SECURITY STUDIES OF THE MICROLEVEL**

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Economic security studies form one of the directions in security studies overall, coexisting along with other its types, such as environmental security studies, information security studies and so on.

The very definition of “economic security studies” in Ukrainian science is being used to cover the field of knowledge about economic security (of a state, a region, an enterprise). From the standpoint of trinity wholeness and perception of socioeconomic realities as an unstructured and off-structured system [1], economic security studies become a field of knowledge about the nature of economic security in relation to different objects (national economy, region, economic sector, an enterprise) as well as about its sources and preconditions, evaluation and provision. By its constitution, economic security studies can be also understood as a teaching and/or a body of interrelated ideas, a system of knowledge which is holistic but differentiated internally. Within this system, some elements depend on the others, while its very basis rests on a set of statements, notions and categories defined as per certain methodological principles and rules [2].

The status of economic security studies as a separate scientific branch is predetermined by the features which are present in any science [3]:

- compartmentalization of the cognitive objects (economic security, security-providing activities; security object; the system of economic security; security-oriented management and so on);
- interrelatedness of cognitive objects through fixed relations: they are interacting with each other, thus transforming through interaction, and this process becomes the subject matter of science;
- presence of a range of problems, the selection and the contents of which are changing in line with the development of science itself, maintaining a certain consistent legacy at the same time;
- orientation of the research methodology on the solution of the problems that can be determined with precision, using the truth criterion commonly used in science overall;
- the use of the commonly accepted criteria of scientific knowledge;
- availability of the reference empirical basis;
- availability of theoretical knowledge that is peculiar for economic security studies alone. Together these numerous concepts, principles, requirements and preconditions form the theory of science;
- absence of a separate, formal and artificial language that would have been applicable to economic security studies only.
- accumulation of knowledge about the economic security of a state, region, enterprise has caused the accumulation of the vast volumes of knowledge about economic security as such. Various definitions have been used to outline and separate this area of knowledge. For a certain period of time English-based shortened terms have been used to define the area of knowledge about economic security (of a state, region, enterprise), namely:
  - ecoseciety (merged from “economic security of society”): the area of knowledge about the preconditions of secure functioning of the

socioeconomic systems and the ways to achieve it [4, p. 3];

- *ecosecent* (merged from “economic security of enterprises”): the area of knowledge about the economic security at the level of economic entities [4, p. 3; 5];
- *ecoseced* (merged from “economic security of education”): the area of knowledge about the economic security of educational institutions [6];
- *ecoserg* (merged from “economic security of a region”): area of knowledge about the economic security at the regional level [7].

However, such merged transliteration of English-based terminology did not find its place in the security studies of other countries, Ukraine in particular. In other languages such terminology loses its essence, thus, research interest to the notions cannot be maintained at a sufficient level.

From the ontological point of view, Ukrainian economic security studies on the microlevel have not stayed still. Its evolution has been taking place in parallel to accumulation of theoretical knowledge about the phenomenon of economic security as well as accumulation of the practical experience concerning security provision at all levels (state, region, enterprise).

Overview of this evolution process would be useful from the standpoint of security evaluation and the related issues. At the same time, we would need to take into consideration the specific features of evolution within Ukrainian economic security studies by their levels.

Accumulation of knowledge within Ukrainian economic security studies was never a linear process. Just like with any other scientific branch, its development was rather dialectical. Therefore, we are able to divide it into the following stages of economic security studies evolution of the microlevel: phenomenological, divergent, convergent-sedimentative.

Table 1 provides the description of the contents and results for each stage in the evolution of Ukrainian economic security studies along with the chronological timeline.

**Table 1**

*Stages in the evolution of the economic security studies of the microlevel*

Stage	Contents	Result
Phenomenological, 1992-2000	Economic security was acknowledged as a separate category and a standalone research object. Objects of economic security were distinguished - the state, region, enterprise. However, interpretation of the category was very simplified and even primitive as this was preconditioned by the empirical approach to studying it.	Formation of a new direction in security studies: acknowledging economic security as a phenomenon that requires research; primal formulation of the contents of this notion; outlining the factors of influence on economic security of enterprises.

<p>Divergent, 2000-2010.</p>	<p>Deeper understanding of economic security; first object-oriented research on the topic (economic security of strategic alliances; economic security of enterprises by sectors; economic security of universities); very first studies on the systemic problems of economic security management. Emergence of several approaches to determination of the notion “economic security of an enterprise”, each of them having its own empirical, theoretical and methodological grounds. Much more active research on the types of economic security and also on evaluation and provision of economic security at an enterprise level.</p>	<p>Formation of the research fundamentals (a set of initial assumptions, key notions and categories). Identification of new objects of economic security. Implicit manifestation of the attributive nature of the notion “economic security” due to the lack of its explicit interpretation.</p>
<p>Convergent-sedimentative, 2010 - till now</p>	<p>Conceptualizing of the accumulated experience, its formalization. Shaping of the whole picture of economic security on the microlevel through harmonization and generalization of the available study results on the issues of enterprise economic security. Finalizing the explanatory basis, strengthening the methodological basis and conceptualization of all the accumulated knowledge.</p>	
<p>Integrational-pragmatic</p>	<p>Aligning of the already available views on the nature of economic security, its place in the thesaurus of economic science and in enterprise management: explanation of the presence of several approaches to understanding the nature of economic security at the enterprise level from the standpoint of the contextual approach; determination of the attributive nature of the notion “economic security of an enterprise”; formulation and aligning of goals within the system of enterprise economic security; objectivation of the system of enterprise economic security.</p>	<p>Integration of the toolkit used for evaluation, provision and support of economic security; the use of this toolkit as applied to the institutional basis of the enterprise management system.</p>

While the latter is somewhat relative, the contents of each stage is rather

peculiar.

Development of economic security studies on the microlevel in Ukraine has started with the phenomenological stage. On this stage, the very phenomenon of economic security of the economic subjects was identified and the initial vision on enterprise economic security was shaped, both being extremely simplified though (for example, seen as “providing the conditions for keeping the proprietary information safe” [8, p. 69]). Obviously, this was not enough for proper explanation of the nature of economic security. The toolkit to be used for its provision and evaluation was also very poor.

At the divergent stage in evolution of economic security studies of the microlevel in Ukraine notions of the economic security (or a state, region, enterprise) have been actively developing:

- several approaches to interpretation of its contents were singled out - the protective, resource-based, activity-based, etc.; the toolkit to be used for evaluation of economic security and its provision became much more elaborated;

- much more relevant became the research on the type-based notions related to security (the algorithm of their division was described by O.V. Ilyashenko in [9, p. 14], including information security, food security and so on. Here appeared the first applied studies of economic security (on enterprises with specific types of activities);

- new objects of economic security were identified (for example, economic security of higher education institutions [10] and economic security of strategic alliances [11]).

Also, at this stage, the notion “enterprise economic security” started to manifest its attributive nature. This manifestation was yet implicit, thus causing the emergence of multiple definitions for this notion. High number of definitions for the notion “economic security of an enterprise” did not get a sufficient explanation at the divergent stage of evolution, therefore, they were often in conflict with each other, thus leading to a substantial contradiction within the categorial toolkit of economic security studies of the microlevel. In its turn, such a competition between the fundamental categories of the economic security studies of the microlevel was not contributing to the formation of a holistic view on its contents.

At the divergent stage, system-shaping studies on economic security became much deeper. Thus, the fundamentals of these studies were practically finalized (as a set of initial assumptions, key notions and categories defined following certain methodological principles and rules). At the same time, this stage of evolution was also suffering from the lack of finality in the explanatory basis of the economic security studies of the microlevel, weaknesses in its methodological basis and also poor conceptuality of the accumulated knowledge which did not explicitly demonstrate the

dependencies between the elements.

Presence of several approaches to understanding the economic security of enterprises, contradictions between these approaches, high number of interpretations of the very notion “economic security of an enterprise”, incompleteness in system-building of the economic security studies together have led to the following stage in the development of economic security studies in Ukraine. Following E. Husserl [12], this stage can be called convergent-sedimentative - as the stage of experience “sedimentation”, its formalization and creation of a holistic picture of an object/phenomenon under study. Such “sedimentation” has allowed:

- not only aligning the existing approaches to interpretation of the notion “economic security of an enterprise” but also acknowledging the legitimacy of the each by means of the contextual approach [9, pp. 27-34];
- adjusting numerous definitions of the notion “economic security of an enterprise” through determination of its attributive nature [11, pp. 17-20; 9, pp. 21-26], thus getting a holistic view on the nature of enterprise economic security;
- progressing in solving multiple problems related to the system-building of the studies in question [13].

This convergent-pragmatic approach allows having a multivariate view on economic security of an enterprise through explanation of its nature with simultaneous use of the key denotata belonging to several approaches and taking into account the attributive nature of this notion.

For now, it would be too soon to talk about the final results of the convergent-sedimentative stage in the evolution of the economic security studies of the microlevel in Ukraine since we are still going through it.

However, with some degree of probability we can already assume that the next stage in the evolution of the economic security studies of the microlevel, by its contents and orientation, would be an integrative one, and in the pragmatic context: once the general vision on the subject of economic security studies of the microlevel has been formed, and there is a sufficient number of well grounded views on enterprise economic security, along with the developed recommendations concerning the provision and evaluation of enterprise economic security, there would be a need to integrate the toolkit to be used for evaluation, provision and maintenance of economic security at the enterprise level. Till now, the issues of evaluation of the economic security at its microlevel and of its influence on enterprise performance are considered somewhat isolated from the system of enterprise management. Obviously, this isolation is causing, at the very least, inconveniences for enterprise management. Thus, the following stage in the development of the economic security studies of the microlevel should be oriented on overcoming these inconveniences.

Therefore, evolution of economic security studies as a science is taking place following the standard rules applicable to any other science: its development is preconditioned by the actual practices of the society; it is developing as a relatively independent science; it has its own legacy; evolutionary and revolutionary stages in the development are interchanging; it is interacting and is interdependent with other scientific branches, etc.

These development rules demonstrate that economic security studies have already become an independent science. On the one hand, these rules are uncovering themselves in the course of progressive development of scientific knowledge about economic security of various objects. And on the other, they reveal the peculiarities of this scientific system formation, the nature of its relations with other economic theories, formation of its own dependable generalizations and specificity of dialectical relations between its key notions.

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## **BUSINESS-INCUBATORS AS AN ELEMENT OF THE SOCIAL-ECONOMIC SYSTEM "AUTHORITY-BUSINESS-COMMUNITY" IN THE CONTEXT OF ECONOMIC SECURITY OF UKRAINE**

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The high effectiveness of the relations management in the social economic system «authority-business-community» and stimulation of the small and medium-sized businesses become more and more important in the context of creating of the modern democratic and information society in Ukraine and radical modernization of the social-economic system.

One of the ways to fulfill this task is to implement business-incubators as infrastructural mechanism of business support, designed for the long term.

The business-incubators essence, classification and functioning were studied by a number of foreign and domestic authors, such as: Boychenko E.B. [1], Vasilyeva L.M. [2], Vodianka L.D., Goroshovska K.V. [3], Shevchenko O.V., Romanova V.V., Zhalilo Ya. A. [4], Zavadyak R.I., Kopusyak J.F. [6], Mykytyuk O.P. [9], Nemchenko A.B. [11], Pulina T.V., Teslenok I.M., Nosov M.P. [13], Stepanenko V.V. [14, 15].

However, the role of business-incubators in the social economic system "authority-business-community" has not been adequately studied yet.

Business-incubators help to create small and medium companies, usually of the innovative type. This function is becoming more important, because the enterprises entry into the old and new markets is complicated by the increased internal and external competition. The necessity to develop the processes of business incubation is aimed at supporting and disseminating innovation and it is confirmed by the experience of the world's leading economies [1]. Business-incubators help to attract investment and entry the market of new innovative products [13].

The opinions of different researchers about the essence and main purpose of business-incubators differ, but it is common to say that these organizations are created to help and promote small and medium-sized businesses at both regional and state levels. Such researchers as T.V. Pulin, I.M. Teslenok, and M.P. Nosov noted, that by solving the problems of small and medium-sized businesses, we solve the problems of the region, because the entrepreneurship is the basis of economic and social state and development [13].

One of the priority areas for improving the efficiency of communities' activities is the formation of the strategic vision of the community development. It is done by assessing its weaknesses and strengths, determining competitive advantages, planning social and economic processes in the medium- and long term, foreseeing the possible consequences of the implementation of such goals and objectives [10, p. 6].

Business-incubators should provide the significant assistance in formation of the strategic vision of the community development.

As it is stated in the scientific report of the National Institute for Strategic Studies, the successful further promotion of the decentralization consist in both the promotion of state processes of openness and transparency and the involvement of local communities in these processes [4, p. 119]. We believe that participation in these business-incubator processes will help businesses and local communities to reach a common opinion, find common ground and work together to achieve common results.

Business-incubators will allow creating the effective tools for the budget funds usage that will help to achieve a cumulative effect. Thus, it is possible to create the added value and additional working places, attract investors and provide citizens with educational, medical, social services of high quality [10, p. 6].

The classification of business-incubators is quite complex. There are several different classification criteria. The majority of the domestic researchers [1; 3; 9; 11; 13; 14] adhere to the following classification:

- 1) based on the approaches of the "companies incubation":
  - "classic business incubators" - structures that help new companies at the stage of their formation;
  - "virtual business incubators" – structures that offer their services in

cyberspace - the unique IT product created to help entrepreneurs;

- “business incubators focused on the development of knowledge-intensive small companies” – structures that are focused on the development of knowledge-intensive small companies;

- “venture incubators” – structures that use the umbrella brand of the business incubator and establish interaction with venture investors - public authorities, large companies from other countries [1, 3, 13];

2) based on the organizational forms of implementation of the business-incubator functions:

- “industrial zones” - they provide a dynamic approach to the problems of regional social and economic development, taking into account the interests of local municipalities and regional development bodies;

- “export-oriented zones” – they promote business services by providing access to the infrastructure and tax benefits, they also promote foreign direct investment;

- “scientific (technological) parks” are scientific and productive territorial complexes; their main task is to form the most favorable environment for the development of small and medium-sized innovative and scientific-intensive companies;

- “territorial productive complexes and cooperation networks” - companies associations that work in geographical proximity to each other in one industrial sector [1, 3].

Unfortunately, it can be stated that business-incubators in Ukraine is not properly developed yet. It happens due to a number of problems, including:

- lack of the legislative basis for business-incubators;

- uneven concentration of the existing network of business- incubators in different regions of Ukraine;

- low awareness of local businesses and communities about the opportunities of business-incubators in the process of entrepreneurship development in the region;

- low level of interest and support of local authorities in the establishment and operation of business-incubators [13].

Despite the difficulties, Ukraine has several examples of successful experience of business-incubators creating and operating. Let’s focus on a few basic examples that relate to the interaction in the social-economic system “authority-business-community”.

In 2018, the Association of Cities of Ukraine, within the PULSE project, implemented the initiative “Incubator of able (successful) communities”. It is a virtual system of various ideas, tools, models and relevant practices and exercises, aimed at creating and implementing of a comprehensive (synergistic) competitive model of development for each selected united territorial communities. Each model of such type is based on the synergy

of different components and it is individual for each community, it has its own algorithm and it is combined with different tools and models, taking into account the characteristics of the community. These models aim at systematic increasing and multiplying own resources to ensure economic development. The best practices of optimization and rationalization of usage of the resources, which were received as a result of decentralization, are implemented within the frame of “Incubator of able (successful) communities”. These resources are used for economic development, according to the designed models. The exchange of models or best practices between communities is foreseen in order to use them for study by other communities [10, p. 6].

One of the options for the business-incubators implementation is the project “Network business incubator for business development in the sphere of creative industries, tourism and production of goods by local brands in the communities of Kharkiv region”. It helps to expand the infrastructure of support to the small and medium-sized businesses, improve the system of specialists training in small and medium companies and provide the resource and information support of the small and medium companies’ development.

The entrepreneurship centers will be created in all united territorial communities of Kharkiv region. 25 courses about starting the own business in different spheres are developed. When a person listens to the training course, he or she will be involved into a business-incubator. Additionally, all possible resources, which promote the development of entrepreneurship, will be added to this platform, i.e, this platform will allow to discuss funding issues [8].

Ukrainian business-incubators exist mainly at the expense of funding from international donor organizations, the premises are provided by employment services at state administrations of cities and regions. The sources of their funding are often from international funds and grant programs, and only to a small extent from local administrations and sponsors. The Ukrainian Association of Business-Incubators and Innovation Centers was established to promote the development of business-incubators in Ukraine. Eastlabs, iHUB, Happy Farm, GrowthUp, Wannabiz, Voomy IT-park and Polyteco are considered to be the most successful business incubators in Ukraine [5].

Thus, it can be stated that despite of the number of problems, challenges and difficulties, business-incubators as an element of the social and economic system “authority-business-community” have significant prospects for successful operation and development. The state has to play a key role in this.

The first and main step should be to ensure the development of business-incubators at the legislative level. At the same time, definitions, functions of business-incubators and services, provided by them, should be clearly

formulated. The state must create the most favorable conditions for the development of business incubation in Ukraine. In addition, the state must ensure proper protection of intellectual property, including the distribution of intellectual property rights between the developer and the research center.

The second step should be to provide support from research institutions and higher education institutions. However, to do this, the state should encourage educational institutions to create business-incubators, assist in the projects' development and implementation. This is one of the main factors in the emergence of innovations in production and planning. Research centers can be created both on the basis of research institutions and educational institutions, and in abandoned buildings, which are in almost every city.

The third step should be to ensure adequate support from local authorities and communities. Local executive and local governments should provide financial support and, if necessary, premises.

The fourth step should be the study and dissemination of the best practices of business incubators, the development of information and methodological framework for the creation, operation and work of business-incubators.

The development of business-incubators as an element of the social and economic system "authority-business- community" will certainly help to improve the investment climate and innovation. This, in turn, will improve both the competitiveness of individual companies and the economic security of the state as a whole.

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# **IMPACT ASSESSMENT OF THE HORIZONTAL LEVEL ACTORS ON THE STATE OF ECONOMIC SECURITY OF THE INTEGRATED INDUSTRIAL STRUCTURE BY FINANCIAL COMPONENT**

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Integrated industrial structures (hereinafter IIS) have long been key objects in many sectors of the domestic economy and are of great importance for the economic security of the state, regions and industries. However, the dynamic change in world economic trends, the complication of the market environment, the growth of unpredictability and fluidity of change requires IIS management to closely monitor the state of economic security and make prompt management decisions to counteract financial and resource losses and risks of such losses using rapid methods for the detection of impact of different level actors (horizontal or/and vertical) by assessing them.

The analysis of recent studies has shown that now in Ukraine there is an actualization of the problems of economic security, accompanied by a deep understanding of phenomena and processes, the generation of new ideas, the emergence of fresh views, the formulation and clarification of the conceptual and categorical apparatus [1; 2; 8; 10; 12].

The issue of identifying the concept of «economic security of the IIS» should begin with an analysis of the basic concept and the way it is interpreted by different authors. Most of the security sphere researchers, as a rule, define economic security (with reference to a specific object, such as a state, region, industry, enterprise, etc.) as a certain result, which manifests itself through the state or the degree of its achievement ( security of the object's potential and/or its activities, coordination and harmonization of interests, economic freedom, etc.) [10].

Taking into account the concept of «economic security» and the specifics of the essence of the IIS, in the study, the economic security of the IIS is understood as such a state of integrated entity, which ensures the preservation of integral economic, technological and organizational and social conditions for the functioning of the structure due to counteracting threats to the external and internal environment by aligning the interests of the IIS with the actors' interests, as well as the interests of the actors among

themselves, and achieving a balance of their resources in order to reduce actual or potentially expected losses [12]. The economic security of the IIS as a state is influenced by the states inherent in its actors as separate socio-economic units of an integral structure.

It is an indisputable fact that any condition must be supported. Involving the support of scientific research [9; 10; 11; 12], «ensuring the economic security of IIS» should be understood as the process of achieving a consolidated result - a state of protection against threats, which is formed under the influence of resilience to the lives of actors; the extent of individual actors' impact on the results of the functioning of IIS as a whole; efficiency of actors' business relations with the main superstructure of IIS and among themselves on horizontal and vertical levels of structure; level of actors' compensatory capabilities, etc.

Among all the stages that shape the process of ensuring the economic security of IIS, it is the assessment that is a fundamental element which helps to objectively determine the current (initial) state of IIS economic security in general and its actors in particular, and, most importantly, to determine directions for achieving the desired (optimal) state of IIS economic security, taking into account the influence of the states of IIS actors. Of particular relevance is the issue of assessment in relation to the efficiency of obtaining information to make quick but effective management decisions to strengthen the security of IIS. The purpose of the study is to reveal the content and prove the importance of the financial component as a functional element in the structure of the economic security of IIS and its actors, the assessment of which will quickly establish the actual state of IIS economic security and identify areas of change under the influence of actors; development of methods for identifying the impact of horizontal actors on the state of economic security of IIS through the determination of the starting position and changes in the risk areas of IIS as a whole and its actors according to estimates of rapid indicators of the financial component; testing of the proposed method on the example of IIS – Metinvest Holding, LLC.

Economic security of IIS is a systemic concept, which includes subjects, objects, functional components and the implementation mechanism of security of IIS and its actors. The functional components of economic security are represented by the main areas that differ significantly in their content. These include the following components: energy, political and legal, power, intellectual and personnel, technical and technological, financial, investment and innovation, information and communication and other [11].

All these components are closely interconnected, interact and cause significant influence on each other. However, the financial component is considered to be the leading and decisive, because the effectiveness of

management of any other element of economic security of the IIS and the system as a whole is most evident through the results of the financial component, and its reactions to changes in external and internal environment of the structure's functioning are faster, more dynamic, indicative and readable. The study supports the view that the financial component of the economic security of the entity (in the case of this study it is IIS and its actors) is associated with a condition that is confirmed by: 1) the profitability of IIS and its actors; 2) cash flow efficiency and solvency of IIS and actors; 3) financial stability of IIS and actors. It is important to note that the assessment of economic security by these criteria is primary and relevant until the application of more complex methods and techniques that involve in the assessment a larger range of structural functional components of economic security of IIS.

Complexity is added by the object of assessment, which is the economic security of IIS: hierarchically and heterarchically structured holistic entity of actors whose interests are realized through joint activities to achieve common goals and confront and overcome threats that exist in the external and internal environment of the whole structure [11; 12]. It will be recalled that the purpose of the study is narrowed to identify the impact of only horizontal level actors on IIS economic security. IIS horizontal level actors are generally considered associations of agents with homogeneous activities operating on the same link in the production or trade chain of the same industry. The procedure for assessing the impact of horizontal actors on the state of IIS economic security by financial component is to consistently perform the following steps:

Step 1. Assessing the financial condition of the integrated industrial structure based on the calculation of quantitative indicators in terms of assessing financial stability, cash flow and solvency and efficiency.

Step 2. Identification of actual and / or potential financial losses (profit, income or equity) on the basis of the obtained deviations of the actual and maximum allowable values of financial component indicators and establishing the starting position of IIS risk zone .

Step 3. Assessing the financial stability of horizontal level actors in terms of assessing financial stability, cash flow and solvency and efficiency of activities on an expanded set of indicators.

Step 4. Establishing actual and / or potential financial losses of actors on the basis of deviations of indicators' values of a financial component (actual from optimum), and also risk zones of their activity.

Step 5. Determining the state of IIS economic security on the basis of the established risk zone of its activity taking into account financial losses, which are a clear and quick demonstration of actual and / or potential threats to IIS activity.

Step 6. Determining the nature of the impact (positive or negative) of horizontal level actors (one industry affiliation) on the economic security of the integrated industrial structure based on information about the risk areas of IIS actors, taking into account their threats related to types and amounts of financial losses. Establishing the adjusted position of IIS in the risk zones' field .

In order to test the proposed methodology, the integrated mining and metallurgical group of companies Metinvest Holding, LLC was selected to assess the impact of horizontal level actors on the state of IIS economic security by financial component. As actors of the horizontal level, which are part of Metinvest Holding, LLC, operate on the territory of Ukraine and have approximate conditions of activity, the following enterprises of the metallurgical industry are selected: PJSC Azovstal, PJSC Ilyich MMK and PJSC Zaporizhstal. Before proceeding to assess the impact of the horizontal level actors selected for the study of the «metallurgy» group on the economic security of the holding by financial component, it is necessary to conduct a preliminary assessment of the financial condition of the corporation as a whole. The obtained estimates will allow to determine the area of financial risk of the holding, which will be the starting point for determining the participation of individual actors in ensuring the economic security of the integrated structure by financial component. It should be noted that the participation of actors is manifested through positive and negative consequences for the state of IIS economic security. The positive consequences include potential financial gains, which, in accordance with the consolidated participation in the IIS, affect the improvement of the zone's position in the risk field of its activities. The negative consequences are evidence of potential financial losses of actors and increased risk of IIS activities. The assessment results of the financial condition of the integrated industrial structure using the example of Metinvest Holding LLC to determine the risk zone of its activities are presented in Table 1.

**Table 1**

*Assessment of the financial condition of the integrated industrial structure using the example of Metinvest Holding, LLC to determine the risk zones of its activity [5]*

Parameters	2018	2019	Changes
Assessment of IIS solvency			
Net assets share in total assets	0.483	0.501	+0.018
Financial independence ratio	0.483	0.501	+0.018
Financial risk ratio	0.936	1.003	+0.067

Assessment of efficiency of IIS cash flow and solvency			
Cash flow liquidity ratio of operating activities	1.698	1.660	-0.038
Cash flow efficiency ratio	0.411	0.397	-0.014
Total solvency ratio	1.618	1.327	-0.291
Assessment of IIS effectiveness			
Sales revenue growth	-	-0.110	-
Operating activities profitability	0.100	0.030	-0.07
Net profitability of equity	0.220	0.049	-0.171
Return on assets	0.106	0.025	-0.081

The obtained assessment of the financial condition indicate that Metinvest Holding LLC is in the zone of acceptable risk of activity approaching to the critical risk zone.

Having established the starting position of the zone in the risk area of Metinvest Holding LLC with the help of financial component indicators , we will proceed to assess the participation of horizontal level actors of the metallurgy group in ensuring IIS economic security with fast indicators of the financial component.

The evaluation results are given in Tables 2, 3 and 4.

**Table 2**

*Assessment of horizontal level actors' solvency of "metallurgy" group of Metinvest Holding LLC*

Parameters	PJSC Azovstal [4]			PJSC Ilyich MMK [3]			PJSC Zaporizhstal [6]		
	2018	2019	Changes	2018	2019	Changes	2018	2019	Changes
Net assets share in total value of actor's assets	0.328	0.296	-0.032	0.352	0.275	-0.077	0.451	0.488	0.037
Net working capital share in total working capital of the actor	0.060	0	-0.060	0.030	0	-0.03	0.241	0.198	-0.043
Current debt share in total actor's capital cost	0.624	0.652	0.028	0.560	0.634	0.074	0.505	0.452	-0.053
Actor's financial independence ratio	0.328	0.296	-0.032	0.352	0.275	-0.077	0.451	0.488	0.037
Extended financial independence ration of the actor	0.376	0.350	-0.031	0.440	0.366	-0.074	0.495	0.548	0.053
Actor's financial risk ratio	2.048	2.374	+0.326	1.841	2.636	+0.795	1.256	1.050	-0.006
Financial leverage effect	negative value			negative value			negative value		

**Table 3**

*Assessment of horizontal level actors' cash flow and solvency of  
"metallurgy" group of Metinvest Holding LLC*

Parameters	PJSC Azovstal [4]			PJSC Ilyich MMK [3]			PJSC Zaporizhstal [6]		
	2018	2019	Changes	2018	2019	Changes	2018	2019	Changes
The share of positive cash flow from operating activities in the total positive cash flow of the actor	0.998	0.998	0	0.996	0.992	-0.004	0.992	0.985	-0.007
The liquidity ratio of cash flow of actor's operating activities	1.050	1.378	0.328	1.034	1.027	-0.007	1.019	1.009	-0.01
Actor's cash flow efficiency ratio	0.067	0.048	-0.019	0.060	0.037	-0.023	0.053	0.024	-0.029
The absolute solvency coefficient of the actor	0.015	0.007	-0.008	0.031	0.026	-0.005	0.012	0.004	-0.008
Intermediate solvency coefficient of the actor (taking into account the collected receivables)	0.855	0.712	-0.143	0.783	0.666	-0.117	1.114	1.058	-0.056
The total solvency ratio of the actor (subject to the monetization of all types of current assets)	1.063	0.852	-0.211	1.031	0.826	-0.205	1.318	1.247	-0.071
The ratio of receivables and payables of the actor	0.839	0.704	-0.135	0.751	0.640	-0.111	1.101	1.054	-0.047

**Table 4**

*Assessment of horizontal level actors' effectiveness of "metallurgy" group  
of Metinvest Holding LLC*

Parameters	PJSC Azovstal [4]			PJSC Ilyich MMK [3]			PJSC Zaporizhstal [6]		
	2018	2019	Changes	2018	2019	Changes	2018	2019	Changes
Increase / decrease in income from sales of the actor's products	-	-0.301	-0.301	-	+0.023	+0.023	-	-0.214	-0.214
Actor's stock turnover, times	3.712	4.920	+1.208	4.132	4.835	+0.703	6.516	4.547	-1.969
Actor's receivables turnover, times	1.714	1.613	-0.101	2.452	2.232	-0.220	2.024	1.222	-0.802
Actor's payable accounts turnover, times	1.433	1.141	-0.292	1.842	1.428	-0.414	2.134	1.346	-0.788

Actor's commercial profitability	0.091	0	-0.091	0.107	0	-0.107	0.165	0	-0.165
Actor's operating activities profitability	0.063	0	-0.063	0.056	0	-0.056	0.110	0	-0.11
Actor's return on equity	0.122	0	-0.122	0.125	0	-0.125	0.158	0	-0.158
Actor's return on assets	0.041	0	-0.041	0.044	0	-0.044	0.077	0	-0.077

Thus, the assessment of the financial condition of the horizontal level actors in order to identify the risk zone of activity to further determine their impact on the economic security of IIS using rapid parameters-indicators of the financial component revealed the following:

- the result of the activities of all studied actors of Metinvest Holding LLC, regardless of the dynamics of net income from sales of products, is a loss, starting with the gross loss result. That is, the activity of IIS actors fell below the break-even point, which indicates their financial losses in the amount of profits (gross, operating profit and net profit of the enterprise) compared to the corresponding indicators of the previous period. Financial losses in the amount of profit against the background of maintaining net income from sales are evidence of the entry of such actors in the area that is at the intersection between the areas of acceptable and critical risk of their activities;

- assessment of cash flow efficiency proved the full security of operating expenses of all IIS actors at the expense of revenues from the same activities. However, insignificant amounts of net cash flow from operating activities do not allow to keep in the accounts of the actors of Metinvest Holding LLC the optimal amount of cash balances for urgent payments, as well as to create reserves for other activities, such as innovation and investment and / or financial. Insufficient liquidity reserves of current assets of PJSC Azovstal and PJSC Ilyich MMK, as well as a decrease in its amount during the study period, led to a partial violation of payment discipline in relation to the current obligations of IIS actors. At PJSC Zaporizhstal, despite the availability of sufficient liquidity reserve for operating costs, solvency can be defined as an increased level of risk due to the main component - receivables, which is a riskier type of liquidity reserve compared to inventories. Therefore, according to the assessment of this area, the actors do not change their positions and remain in the area defined in advance (i.e. at the intersection between the areas of acceptable and critical risk of their activities);

- the low level of financial stability (with a tendency to further decrease) of two actors, such as PJSC Azovstal and PJSC Ilyich MMK, against the background of unprofitable activities during the last period under study,

indicates the presence of actual risks and the actual occurrence of the situation of loss of equity of these actors, which reduces their position in the zone of critical risk. Unlike the mentioned actors of Metinvest Holding LLC, at PJSC Zaporizhstal provided that the level of financial stability rises towards the optimal value, but taking into account unprofitable activities in 2019 and changes in the ratio between equity and borrowed capital not in favor of equity, the activity can be recognized as having the risk of potential loss of equity in the future. Therefore, PJSC Zaporizhstal remains on the line between the zones of acceptable and critical risks of the actor's activity.

Approbation of the proposed method of identifying the impact of horizontal actors on the economic security of the integrated industrial structure based on the assessment of the financial component using the example of Metinvest Holding LLC allowed to quickly establish the following:

1) the economic security of the holding as a whole is at an acceptable level with a downward trend, as evidenced by the risk zone of its activities, which involves the loss of consolidated income, a significant reduction in profitability and changes in the capital structure of IIS and, consequently, the tendency to potential loss of equity;

2) among the horizontal level actors of the “metallurgy” group of Metinvest Holding LLC, PJSC Zaporizhstal has the negative nature of the impact, provided the existing level of economic security of IIS (i.e. financial losses of the actor are identical to the losses of IIS);

3) PJSC Azovstal and PJSC Ilyich MMK have a negative impact on the condition of lowering the starting position of the level of IIS economic security (the financial losses of these actors are much lower than the losses of IIS). Further development may require the method of identifying the impact or its procedure, which may take into account other important factors that significantly affect the values of indicators of the financial component. As an example, it should be noted that two of the three actors of Metinvest Holding LLC, such as PJSC Azovstal and PJSC Ilyich MMK, together with their production areas are located in Mariupol, Donetsk Region, which is close to the demarcation line in the area of environmental protection, which creates significant challenges in the activities of enterprises-actors and can have an additional impact on the level of their economic security. However, it should not be forgotten that the main aspect of the proposed methodology is the efficiency of its application and the speed of obtaining information, which may suffer due to excessive expansion or deepening the methodology.

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## **METHODICAL SUPPORT FOR ASSESSING THE LEVEL OF ECONOMIC SECURITY OF AGRICULTURAL ENTERPRISES**

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The basis for ensuring economic security is the development of effective measures in order to increase the efficiency of the agricultural enterprise and eliminate different problems in various economic activities. Management of a company uses all appropriate tools for diagnosing economic security to implement this basis. The complexity of this procedure is the subjectivity of assessments. It is also not easy to take into account the factors of the internal and external environment of the enterprise, which emphasizes the relevance of the study.

Nowadays, many different methods of assessing economic security have been well-formed. Their importance and feasibility are determined by each user on a case-by-case basis.

So, according to Vasylytsiv T.G. [1], it is necessary to identify such methods that are most appropriate for assessing economic security: expert assessment, monitoring of socio-economic indicators, analysis and processing of scenarios, optimization, multivariate statistical analysis, methods of game theory and a theory of artificial neural networks (ANN).

Dovbny S.B. and Gichova N.Y. [2] distinguish complex methods among a big number of different methods of assessing economic security: methods of comprehensive threat assessment (integrated risk assessment, assessment of the effectiveness of proper protective measures); methods of comprehensive assessment of the economic potential of the enterprise (assessment of the competitive status of the business entity, integrated assessment of compliance with the interests of the enterprise, SWOT-analysis).

Sudakova O.I. [3] and Kirichenko O.A. [4] recommend providing a formation of a management system for economic security of entrepreneurship.

According to S. Mishchenko [5], it is necessary to apply some other hierarchy of methods: extrapolation (extrapolation of parametric dependencies, extrapolation of past trends), expert methods (survey, method of expert assessments, drawing up and making analytical reports, brainstorming, the Delphi method or Delphi technique), structural and analytical methods (modeling, hierarchical decomposition, morphological analysis, SWOT).

A number of researchers (Bilyk M.D., Kasatkin G.I., Ligonenko L.O.) proposes to use statistical models to assess the risk of bankruptcy in order

to analyze the economic security of the enterprise. Still, it is necessary to admit that the essence of methods of predicting bankruptcy is outlined only by revealing of symptoms of financial crisis of the enterprise. That is why the essence of the investigated concept is essentially limited.

The analysis of these methods which help to assess the economic security of economic entities, allows scientists to conclude that its assessment should not be limited to the analysis of economic conditions of the enterprise.

Business entities concentrate their production in the agricultural sector of Ukraine. They focus only on increasing gross income and maximizing profits. Thus, they level the existing potential of the industry. They minimize innovation activity and reduce the monitoring of the level of economic security to the calculation of net profit (loss).

There is a wide variety of models, methods and techniques which help to assess the economic security of enterprises. We can systematize them and distinguish in Table. 1.

**Table 1**

*Characteristics of the main approaches to assessing the level of economic security of enterprises*

<b>The name of the approach</b>	<b>Author(s)</b>	<b>The essence of the approach</b>
An «Indicator-Threshold» approach.	Bendikov M.A., Kotenko N.O., Matsekha D.S., Senchagov V.K.	There is a comparison of the actual performance of the entity with the indicators (threshold values) that characterize the level of security.
A Resource-Functional Approach	Reverchuk N.Y. Shtovba S.D. Oleynikov E.A.	This approach involves assessing economic security by assessing the efficiency of enterprise resources. In this case, the assessment of the level of economic security of the enterprise is often identified with the analysis of the state of its financial and economic activities.
A program-targeted approach	Dovbnya S.B., Gichova N.Y.	This approach is based on an integrated set of indicators. They determine the level of economic security of the enterprise. Cluster and multicriteria analysis is used here.
A cyclical approach	Kozachenko G.V.	This approach is based on the application of the theory of economic cycles associated with the rise and fall of business activity. New forms of transition to a new cycle of economic development are implemented at the junction of ups and downs. There may also be a loss of competitive advantage. At the same time, threats to economic security are also formed at these junctions.

Minimum of total damage that can be caused to safety	Buchwald E.M., Glovatskaya N., Lazurenko S., Shlykov V.	This approach sets certain thresholds for the financial security of the enterprise. Deviation from the threshold level can lead to bankruptcy. However, there are some difficulties, because the criterion is difficult to calculate due to the lack of necessary accounting and statistical data. Such an indicator can be calculated only by an expert, which may have its limits of accuracy.
Profit and investment approach	Ponomareva V.P., Lyashenko O.M.	Here we have a comparison of the volume of investment of the enterprise (reinvested income) with the amount of investment funds needed to ensure the economic security of the enterprise.
An approach based on the theory of economic risks	Marushchak S.M., Dotsenko I.O.	It is used to determine the list of threats to the enterprise and the probability of their occurrence. This method calculates the damage from adverse events.
A process approach	Scarlett S.M.	This approach characterizes the level of economic security as a real effect of economic activity. This effect can be observed in the form of increasing the usefulness and certain result (quantity of products, quality of services, etc.) and reducing the cost of achieving it by rational combining certain factors of resource usage.
An complex approach	Matveev M.V.	This approach is based on a surplus (cost-profit) scheme and is calculated according to the main economic indicators of the enterprise. Modern economic and mathematical methods are used here.
Cluster (infrastructure) approach	Kostyukevich D.W.	This approach defines economic security as the ability of a system to achieve certain set goals due to its supporting factors (including infrastructure). These factors are related to the quality of products (services), market size, competitive advantage, risk minimization or economic losses, etc.).
Economic and mathematical approach	Vartanyan V.M., Skachkov O.M., Revenko D.S.	The approach is based on the construction of an economic and mathematical model that reflects the level of economic security of the enterprise and has the form of a function with many variables.
Methods of expert evaluation	Kozachenko G.V.	This approach is used in the diagnosis of objects (processes, phenomena). The assessment of such phenomena is not subject to formalization and, accordingly, unambiguous interpretation, where the possibility of applying evaluative indicators is limited.

System approach	Pilipenko N.M., Pilipenko V.V.	This approach defines economic security as a set of elements that make up its structure. Based on the level of significance of each of the elements and the quantitative measurement of its state, the integrated level of economic security of the organization is determined.
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*Source: summarized by the author based on [2, 6-14]*

Based on this, we can say that there are powerful tools in the practice of economic analysis. These tools allow making a comprehensive analysis of the level of economic security of the enterprise, although the studied category is complex and multifaceted.

The usage of each of these methods and approaches requires additional assessment of the feasibility in the current economic conditions of the agricultural enterprise. Therefore, it requires a comprehensive study.

It is really a fact that agriculture is the main basis of Ukraine's agro-industrial complex and a key element in strengthening the country's food and national security. It is necessary to admit that a comprehensive study of levels of economic security should be an important aspect of the analysis of economic security of agriculture.

So, Golovich N.M. in [15] proposed a method for assessing the level of economic security of agricultural enterprises. The methodology takes into account the internal structure of the industry. This technique can be used as a conceptual approach and requires adaptation to a specific agricultural enterprise.

Therefore, we consider it necessary to deepen the methodology for assessing economic security and conduct it on the following indicators of assessment: economic independence and sustainability; efficiency of functioning; ability to develop; bankruptcy prediction; competitiveness and market advantages; risk and uncertainty; staff and intellectual potential; land resources and their usage (Fig. 1).

Each of the proposed sectors of the level of economic security of the agricultural enterprise consists of criteria. The assessment of their condition should be compared with their regulatory values of the industry. As a result, being based on the analysis, the integrated indicator is calculated, which is the sum of the eight proposed components. It is based on the weighting coefficient of each. It should be emphasized that the analysis by this method takes into account the state of the main components of economic security. In our opinion, this method reflects the peculiarities of the functioning of the agricultural enterprise most accurately.

We have thoroughly studied the methodological approaches to assessing the economic security of agricultural enterprises. It is found that there is no established system of indicators for its evaluation, which take into account

and reconciles all methods of assessing the economic security of the state, because we have noticed some relationship between them.

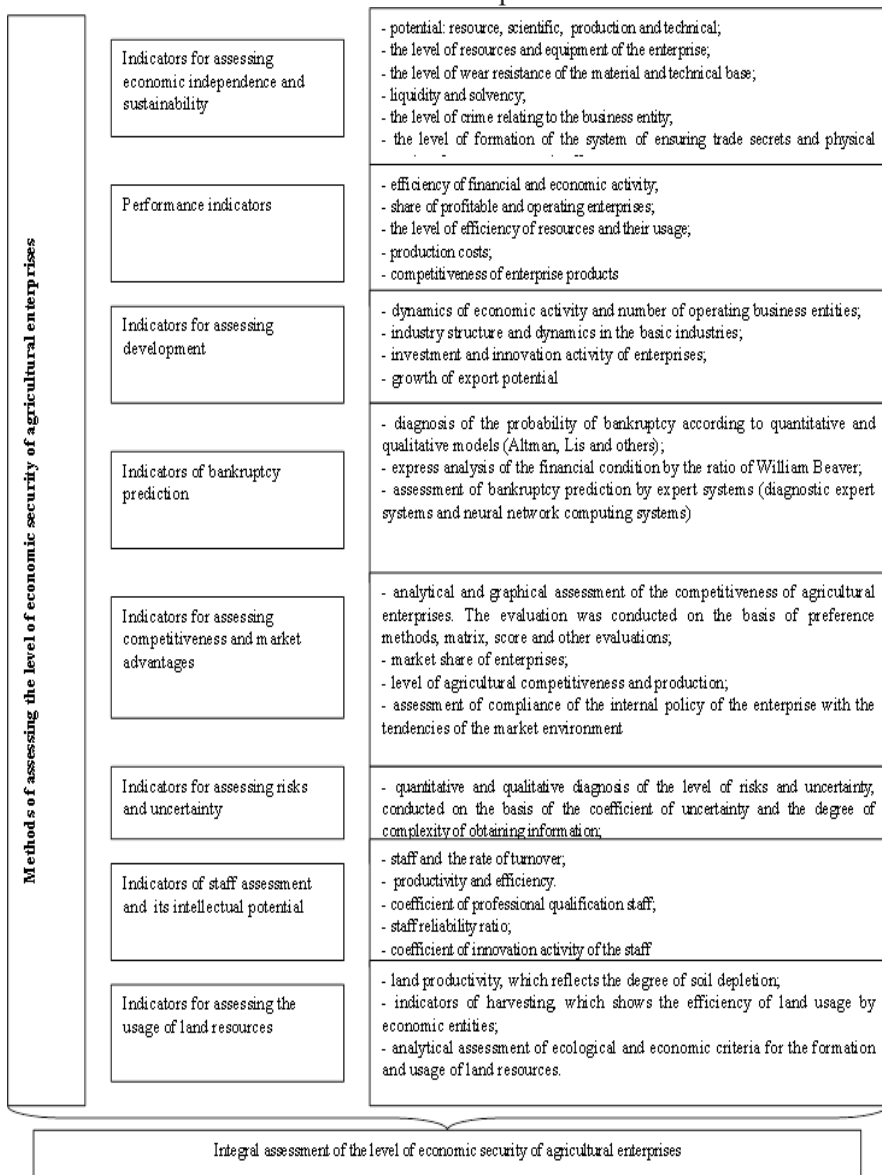


Fig. 1. Methods for assessing the level of economic security of agricultural enterprises

Source: improved by the author on the basis of [15]

So, as a result of the study, we have found that the modern scientific literature offers a large number of different models and approaches. There are both general scientific and author's methods among them. However, there are currently no universal methods for assessing the economic security of the enterprise. Each of them has both advantages and a number of disadvantages or inaccuracies.

Improvements in the methods of assessing the economic security of an agricultural enterprise should be carried out using the method of selecting the necessary indicators for a particular business entity. It is necessary to assess and build an integrated consolidated criterion, which can be the basis for further assessment of the level of economic security of the agricultural enterprise. Further application of methods of economic security assessment will allow to obtain more accurate information concerning the economic condition of the agricultural enterprise and to determine effective ways to increase the level of economic security.

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# **PART 3. THE MECHANISMS OF ENSURING ECOLOGICAL, FOOD, TECHNOLOGICAL, AND ENERGY SECURITY IN THE DYNAMIC ENVIRONMENT**

## **ENERGY EFFICIENCY MANAGEMENT OF AGRI-FOOD ENTERPRISES**

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In the context of intensifying the processes of national economy integration into the world economy, one of the main conditions that ensures the stable development of the economy of any country is the introduction and optimization of energy efficient technologies use in the production activities of enterprises. At the same time, the use of these innovations is the most relevant for agri-food enterprises due to their high level of consumption of raw materials, auxiliary materials, fuel, and energy. However, energy efficiency management of the mentioned enterprises is complicated by the lack of investment in the agri-food sector as a whole, low efficiency of the use of its financial resources by an individual agricultural enterprise, high level of credit risk, which inherent in innovative projects. In this regard, the priority in the development of agri-food enterprises is the constant modernization of production technologies, optimization of the interaction between financial and credit organizations and agri-food enterprises, development and implementation of economic management mechanisms that will ensure the most efficient use of resources.

The need for further research to improve energy efficiency management in agri-food enterprises is worth noting. In this regard, the study aims to develop a methodology for assessing the economic efficiency of innovative energy efficiency projects.

In our opinion, analyzing the effectiveness of innovative energy efficiency projects in agri-food enterprises, it is advisable to compare two alternative situations when an enterprise implements or does not implement

these projects. In a modified form, this situation can be represented as a formula (1):

$$P = \Delta P_{n,p.} - \Delta K_{n,p.} \quad (1)$$

where  $P$  - profit due to resource savings in the implementation of an energy saving program;

$\Delta P_{n,p.}$  - changes in profits due to resource savings in the implementation of an energy saving program;

$\Delta K_{n,p.}$  - changes in costs due to resource savings in the implementation of an energy saving program.

This approach characterizes the economic efficiency of energy saving projects. However, its detailed study requires the use of a more advanced instrument.

Based on the methods of investment project analysis [1-8], the economic efficiency of energy efficiency projects in agri-food enterprises can be determined using a system of indicators that reflect the ratio of costs and results. These indicators include  $PV$  - current value,  $NPV$  - net discounted profit;  $IRR$  - internal rate of return of a project;  $PBP$  - payback period;  $PI$  - profitability index and  $MIRR$  - modified internal rate of return. Consider these indicators in more detail.

Thus,  $PV$  characterizes the current value of a cash flow generated by an energy efficiency project (2):

$$PV = \frac{P_m}{(1+r)^m}, \quad (2)$$

where  $m$  - the number of years during which calculations are made.

Since the  $NPV$  indicator is significantly influenced by the discount rate ( $i$ ), it is advisable to calculate the dependence of  $NPV$  on a discount rate to assess and analyze the economic efficiency of energy efficiency projects.

The  $IRR$  indicator is a discount rate  $i^*$ , at which the cost of energy and resource savings expected from an innovative project on energy efficiency in agri-food enterprises is equal to the cost of expenses on its implementation, i.e. the total economic effect covers the number of borrowings involved, interest on them and corporate income tax.

The value of an indicator is the threshold value of a discount rate at which the implementation of a project is appropriate. The decision on project financing should be made on the basis of comparing the  $IRR$  with the normative profitability of an energy efficiency project, and the higher the value of the  $IRR$  is, the greater the difference is between its value and

the normalized discount rate, the greater the financial safety margin of the given project is.

**PBP** - the payback period of an innovative energy efficiency project is defined as the time period  $t^*$  that is necessary for refunding the investment with the money saved during the project implementation and accumulated by an enterprise. Analytically, the payback period of a project is defined as follows (3):

$$PBP = t^* \text{ for } \{NPV(t^*) = 0\}. \quad (3)$$

The implementation of a project is reasonable if the calculated payback period does not exceed the repayment period of a loan, which is agreed with an investor.

**PI** - profitability index - reflects the relative profitability (discounted profitability) of a project.

This indicator characterizes the efficiency of investments made in a project and must comply with the condition  $PI > 1$ .

Another indicator similar in content to the IRR is the modified internal rate of return - **MIRR**.

It is necessary to determine the boundaries of the calculation period to assess the future costs and results of innovative energy efficiency projects. The duration of this period (time horizon) is taken on the basis of the duration of development and implementation of energy efficiency; the achievement of the set characteristics of savings from measures implementation; investor requirements.

We consider it necessary to introduce the following indicators to determine the economic efficiency of an energy efficiency project:

$CJ_j$  - funds invested in the j measure;

$NPV_j$  - return of the j measure;

$PJ_j$  - profitability of the j measure.

Given that the projects implemented within one year are being considered, their current discounted value will be determined as follows (4):

$$PV = \frac{P}{1-i}, \quad (4)$$

where  $P$  - expected inflow of funds from savings during the implementation of a program;

$i$  - discount rate.

It is possible to provide a certain weight indicator and build a rating of

energy efficiency measures through expert assessments without taking into account the probabilistic approach to each indicator. With this approach:

- 1) the more NPV relative to CJ is, the higher the “weight” of is *NPV*;
- 2) the greater the PJ and IRR are concerning the return on assets of an enterprise, the higher the “weight” of PV is.

One of the main problems in assessing the effectiveness of innovations is the uncertainty of an expected return. There is a risk of investing in energy efficient innovations due to the uncertainty of funds from the energy efficiency project implementation. It is advisable to use the coefficient of variation to assess this risk (“iota-coefficient”) (5):

$$J = \frac{\sigma}{M}, \quad (5)$$

where *J* - iota-coefficient,

$\sigma$  - standard deviation;

*M* - a mathematical expectation of evaluated value.

For the project of measures (6):

$$J = \frac{\sigma_{NPV}}{NPV}, \quad (6)$$

where  $\sigma_{NPV}$  - standard deviation of net discounted profit from resource savings during project implementation.

In the simplest case, if the “weights” of the measures that can be included in the project have the same indicators (7):

$$\sigma = \sigma_m; \quad NPV_j = NPV_m. \quad (7)$$

We get the ratio (8) from (7):

$$J = J_m / \sqrt{n}, \quad (8)$$

where

$$J = \sigma_m / NPV_m, \quad (9)$$

where *J<sub>m</sub>* is the iota-coefficient of a measure, which is equal to the ratio of the project financing fund (CJ) to the cost of financing a medium measure.

The resulting ratio is equivalent to (10):

$$PFR = JFE / \sqrt{n} \quad (10)$$

where PFR - the average risk of an insurer per agri-food enterprise;  
 JFE - the individual risk of an enterprise;  
 n - the number of identical insured enterprises.

Thus, the risk of project implementation is lessened by reducing the average cost of the measures included in its structure.

Taking risks into account, the guaranteed level of net discounted profit from energy and resource savings during the implementation of an energy efficiency project can be determined using the definition of the confidence interval of a random variable. It will be (11):

$$NPV \geq NPV - t \cdot \sigma_{NPV} = NPV(1 - t \cdot J_{NPV}), \quad (11)$$

where  $\sigma_{NPV}$  - standard deviation of the net discounted cost of a project;  
 $J_{NPV}$  - iota-coefficient of a project;  
 t - coefficient of a confidence interval.

To evaluate a project, the indicator of guaranteed NPV can be used, which is proposed to determine through the following formula (12):

$$NG = \frac{NPV_g}{NPV} = 1 - t \cdot J_{NPV}, \quad (12)$$

where NG - indicator of the guaranteed NPV of an energy efficiency project.

But under modern conditions, not only the flow of money from energy and resource savings but also the level of interest rates on loans and discount rates are unstable. Therefore, it is necessary to clarify the definition of the coefficient of variation of NPV, which depends on them.

Numerical characteristics of random variable functions are determined by their expansion into Taylor's series and are usually limited to a linear expansion.

Then the value of the iota-coefficient for the current value of cash flow will be determined by the formula (13):

$$J = \frac{\sigma \sqrt{n+2 \sum k_{jk}}}{\sum PV_j} = \frac{\sigma \sqrt{n+2 \sum k_{jk}}}{PV_m \cdot n} = J_m \cdot \sqrt{\frac{1}{n} + \frac{2 \sum k_{jk}}{n^2}} \quad (13)$$

From (13), performing mathematical transformations, we can obtain the following formula for estimating the iota- coefficient, which characterizes the overall risk of a project (14):

$$\frac{J}{J_m} = \sqrt{\frac{1}{n} + k \frac{n-1}{n}}. \quad (14)$$

Also, we think that in determining the economic efficiency of energy

efficiency projects, it is necessary to take into account the impact of volatile discount rates. In the first approximation (15):

$$D_{NPV} = \left(\frac{\partial NPV}{\partial PV}\right)^2 D_{PV}^2 + \left(\frac{\partial NPV}{\partial i}\right)^2 D_i^2. \quad (15)$$

where DNPV - variance of net discounted profit from project implementation;

DPV - variance of the current value of cash flow generated by a project;

$D_i^2$  - variance of the discount rate;

$\partial$  - partial derivatives.

$$NPV = \frac{PV_j}{1+i} - CJ. \quad (16)$$

$$\frac{\partial NPV}{\partial PV_j} = \left(\frac{1}{1+i}\right). \quad (17)$$

$$D_{NPV} = \left(\frac{1}{1+i}\right)^2 D_{PV} + PV^2 \frac{1}{(1+i)^2} \cdot D_i. \quad (18)$$

Thus, the parameters that influence the economic efficiency of innovative energy efficiency projects at agri-food enterprises are determined, namely:

- number of energy efficiency project measures (n);
- discount rate (i);
- profitability of energy efficiency (r);
- iota-coefficients of savings from the implementation of each of the project measures (JPV);
- iota-coefficient of the discount rate (Jj);
- ratio of the iota-coefficient of the discount rate and the iota-coefficient of cash flow generated by energy efficiency innovations (J/Jpv);
- correlation coefficients between the amount of savings from each of the energy efficiency project measures (k).

At the same time, it should be emphasized that effective management of innovative energy efficiency projects requires the improvement of a management mechanism of agri-food enterprises, its focus on program-target planning, and flexible organizational management structures that ensure the development of these entities in the context of fierce competition and constant changes in the environment.

As a result of the study, to optimize the management of innovative energy efficiency projects in agri-food enterprises, it is proposed to improve the methodology for determining the economic efficiency of these projects by assessing the risk of each measure that is part of a project, and

project as a whole. In this regard, the selection of measures for a particular innovative energy efficiency project should be based on the determination of the maximum economic efficiency and the minimum level of risk for each of them. From viewpoint of risk, the optimal structure of a project is provided through the effective diversification of risks, which consists in the selection of measures directed on the saving of energy and various types of resources. Risk reduction should be ensured by the introduction of an effective management system of an agri-food enterprise focused on the implementation of energy efficiency projects.

The use of the proposed methods of assessing the economic efficiency of innovative energy efficiency projects will make it possible to quickly improve solutions in the process of integrated energy efficiency management of agri-food enterprises by implementing basic standards of resource management taking into account possible risks.

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## **COMPREHENSIVE ASSESSMENT OF ENERGY SAVING PROJECT MANAGEMENT IN THE BUDGETARY SPHERE**

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The main task of solving energy saving problems is to form institutional mechanisms that would encourage the city authorities and the administration of institutions to energy planning and an integrated approach to the modernization of the electrification system and heat supply of budgetary institutions.

In the current conditions of unrestrained political and economic pressure on the energy sector and the economy of Ukraine in general, educational institutions and budget organizations without effective management in conditions of uncertainty, it is increasingly difficult to maintain not only the stability of organizations, but also increase competitiveness. To achieve strategic goals, it is important to develop models for managing the portfolio of energy saving projects, taking into account not only the static but also the sensitivity of institutions to changes in external factors.

If to look at directions of energy saving, it is possible to allocate key - extensive and intensive.

Extensive (from the word *extensivus* - expanding, lengthening (Latin)) energy saving measures aimed at quantitative reduction of energy consumption (exclusion of lighting in daylight, the rigidity of energy consumption, elimination of theft of fuel and energy resources, etc.). Extensive (from the word *extensivus* - expanding, lengthening (Latin)) energy saving measures aimed at quantitative reduction of energy consumption (exclusion of lighting

in daylight, the rigidity of energy consumption, elimination of theft of fuel and energy resources, etc.).

Intensive (from the word intension - intense, enhanced (Latin)) energy saving measures, on the contrary, involve the construction of an innovative model while taking into account technological changes and the peculiarities of market consumption (replacement of quality of power plants and technological lines, liberalization of energy markets, implementation of foreign practices of energy efficiency project management, etc). Although the implementation of organizational, technological, information and communication digital technologies, technical and economic and other mechanisms of intensive energy saving measures requires capital investments and other investments, the effectiveness of such investments is higher than in other extensive measures.

When forming a model complex, it is necessary to consider, first of all, project development scenarios, which will allow to assess the impact on the project of «uncertain event or set of events and conditions», which in case of implementation will have a positive or negative impact on the strategic goal. When forming a model complex, it is necessary to consider, first of all, project development scenarios, which will allow to assess the impact on the project of «uncertain event or set of events and conditions», which in case of implementation will have a positive or negative impact on the strategic goal.

The formation of a model complex provides an opportunity to choose the optimal strategy, both for the near future and for the long term, with the possibility of simultaneous change of several variables due to the probability of each scenario.

The main goal of creating an optimal energy efficiency management system for any institution is to invent such a model for managing energy saving projects, which takes into account all the features and factors of the region's dynamics and the direct functioning of the institution itself. The development of a modern adaptive and sustainable energy efficiency management system of the institution is accompanied by a huge amount of information that must be processed and presented in a convenient and understandable form. Such challenges actualize the need for the formation of a model complex through the use of economic and mathematical methods and models.

To identify scenarios for the development of the energy sector, consider possible options. The results of economic modeling conducted by domestic scientists, presented in the report «Ukraine's transition to renewable energy by 2050» prove that Ukraine has every chance to overcome dependence on imports of traditional energy resources [1].

An important component of assessing the economic efficiency of energy saving measures is the procedure and criteria for assessing the economic

efficiency of project (investment) projects.

Analysis of scientific sources showed that almost all official specialized domestic methods that would establish the procedure for calculating the effectiveness of energy saving and energy efficiency measures [2-6] are based on foreign experience of investment analysis.

At the same time, despite the increased interest in this area of research by scientists, it is important to find new approaches to comprehensive assessment of economic efficiency of energy saving projects in the budget sphere from the standpoint of the interests of various participants in the investment process.

It is fair to say that analytical and effective evaluation, which reflects the economic benefits of implementing one project over another, is crucial for the implementation of any project.

The main task of economic analysis of the effectiveness of projects in the field of energy saving and energy efficiency is to assess strategies and measures to implement the results.

Let's highlight the basis of system indicators of the energy saving project in the budget sector (Fig. 1).



Fig. 1. The main system indicators of the project

Source: author's development

Energy efficiency indicator is the main indicator, which is determined by the degree of achievement of the set goals of energy supply (optimization of energy efficiency measures).

Indicator of commercial (financial) efficiency - is determined by the ratio of costs and financial results of the project for both the target institution and for the region / state as a whole. An important indicator in assessing the financial efficiency of energy-saving projects is the comparison of different cost indicators over time [7].

$$B(\phi)t = R(\phi)t - E(\phi)t \quad (1)$$

where  $B(f)t$  is the commercial efficiency for the planned period;  $R(f)t$  - general commercial results;  $E(f)t$  - the amount of required costs.

The budget efficiency indicator reflects the impact of the energy efficiency project directly on the profits and expenditures of the state, regional or local budget. When assessing and justifying the measures of state or regional financial support included in the energy saving project in the budget sphere, a normative assessment can be used.

$$B(e) = R(e) - E(e) \quad (2)$$

For each stage (e), the budget effect  $B(e)$  is defined as the difference between the revenues  $R(e)$  and the expenditures  $E(e)$  of the respective budget

The integrated budgetary effect  $B(i)$  is calculated as the excess of the integrated budget revenues  $R(i)$  over the integrated expenditures of the budget  $E(i)$ .

$$B(i) = R(i) - E(i) \quad (3)$$

Ergonomic indicator - assessment of the conditions of comfort of stay, microclimate in educational, working premises for a long time (season, year). Calculated by summing the parameters measured in the mode of operation of real buildings or dynamic computer simulations.

The unique social component is one of the most important, the essence of which is the exclusive role of ensuring the viability of institutions and establishments - compliance with the requirements of standards: reliable, high quality and safe electricity supply, as well as continuous technical and technological improvements to meet growing demand, an acceptable pricing policy for energy services, electricity supply to remote areas with low density and small population, etc.

The indicator of social efficiency is an indicator obtained on the basis of identification and economic assessment of qualitative characteristics that affect social change in society [8].

Assessment of the social effect is calculated by the following formula:

$$\hat{A}_{\bar{n}} \equiv \sum_{n=0}^t \sum_{i=1}^k \frac{B_{C_a}}{(1+r_c)^n} - \sum_{n=0}^t \sum_{i=1}^k \frac{C_{\bar{n}_n}}{(1+r_c)^n} \quad (4)$$

Where  $B_c$  - social effect from technological modernization / replacement or use of renewable energy sources in the  $n$  period;

$\hat{A}_{\bar{n}_n}$  - social benefits and profits from technological modernization / replacement or use of renewable energy sources in the  $n$  period;

$C_{\bar{n}_n}$  - social costs of technological modernization / replacement or use of renewable energy sources in the  $n$  period;

$r_{\bar{n}}$  - social discount rate, which is used in projects aimed at improving the reliability of energy production and use by organizations in terms of public economic importance of the territorial community, region, state, etc.

When  $\hat{A}_{\bar{n}} > 0$  - the project is socially significant for the economy,  $\hat{A}_{\bar{n}} < 0$  the project is unprofitable for implementation in terms of social significance.

The environmental component of energy saving project management in public sector organizations is the interaction of the energy sector with the environment and should be based on the following principles:

- increasing energy efficiency and improving air quality from harmful substances (nitrogen oxides, sulfur) and reducing the risk of industrial accidents;
- financial investment in infrastructure, technological restructuring (modernization) of production and increasing the use of RES;
- introduction of an emission monitoring system and, accordingly, reporting mechanisms to obtain adequate data on emissions from relevant sources of pollution;
- digitization of information support of the ecological situation of objects of pollution and changes that occur, etc.

Indicator of environmental consequences - assessment of environmental consequences of implementation of energy saving projects (use of international standards of environmental management systems, environmentally safe, resource- and energy-saving technologies, development of renewable energy sources, etc.).

The indicator of economic efficiency is a quantified impact of the project implementation process on the economy as a whole, industry, region, institution and not related to the financial interests of the participants.

That is, we can say that the economic efficiency of the project  $B(3ar) =$  the ratio of  $R(3ar)$  of the total result with  $E(3ar)$  project costs:

$$B(3ar) = R(3ar) / E(3ar). \quad (5)$$

For maximum efficiency and effectiveness of comprehensive evaluation of energy saving projects in the budget sphere, it is advisable to introduce an innovation indicator, which provides an opportunity to evaluate the project for the selection and implementation of innovations for the energy sector. Innovative technologies will provide an alternative to the traditional ones and should be aimed at updating the model of the energy sector.

The innovation indicator is a weighted aggregate indicator composed of a number of indicators that can be calculated according to the Methodology for calculating the Total Innovation Index [9].

Innovation makes adjustments to the development of the economy and society. Specialists of the London School of Economics and companies McKinsey concluded that the productivity and efficiency of companies by 56% depends on the choice of managers effective methods and methods of management [11, 12]. Innovative technologies will not only have a positive impact on the pricing of the energy sector, but also support the talented human potential of our country. There is no need for evidence that the development and implementation of innovative projects can be equated to intellectual capital.

The component of science-intensiveness is the use of innovative advanced technologies and scientific achievements, which meet not only measures to replace equipment, facilities, installations for relevant facilities (which have improved energy and technical and economic indicators), modernization of industrial equipment (in order to change the operating parameters of equipment and energy and increase the efficiency), but also energy saving management through automation and digitization of all production cycles.

It should be noted that the system indicators allocated on the basis of implementation and consideration of potential energy saving projects in the budget sphere are quite artificial and are related to the definition of a single indicator of economic efficiency for different objects and levels of the economic system: the state as a whole(global criterion of economic efficiency), regional, sectoral, institution level or specific energy efficiency project.

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## **DIRECTIONS AND RISKS OF IMPLEMENTATION OF ENVIRONMENTALLY SAFE PYROLYSIS CIRCULATION PROCESS OF SOLID ORGANIC WASTE DISPOSAL**

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The removal of mixed solid waste (MSW) to landfills, or open incineration without energy recovery, leads to a loss of resources, environmental pollution (EM) and health problems.

Energy recovery from solid waste has various incentives: job creation, combating climate change, mitigating its effects, protecting emergencies and reducing dependence on traditional fuel sources, and more.

The growing demand for energy for industrial and domestic use motivates the constant search for alternative clean energy sources.

Attractive one from the known technologies for the utilization of organic waste are pyrolysis and gasification technologies, which allow to obtain energy, make environmentally friendly and economically feasible production that can be used in utilities, chemical, petrochemical and other industries to regenerate organic waste into low molecular weight liquid and gaseous.

Based on this, the original equipment of the new innovative technology «Ecopyrogenesis» (EPG) was developed, which combines multi-circuit circulating pyrolysis (BCP) with multi-circuit circulating dual-zone gasification (BCG), which provides deep decomposition of the components of polymer waste to obtain low molecular weight liquid fuel and generator gas [1; 2; 5].

The combination in one technological process of utilization of waste of the pyrolysis installation and the gas generator will allow to prove use of a full set of MSW. And if you add to equipment an autonomous power plant or cogeneration unit, using as fuel pyrolysis or generator gases, liquid pyrolysis liquid of light fractions, as well as solid residue, you can provide in the auto-power mode all technological processes of utilization and heat supply. The economic efficiency of the proposed complex of «Ecopyrogenesis» will be even greater if the liquid light fractions of pyrolysis are processed by known chemical technologies, which will solve environmental, economic,

technological and managerial issues.

In the process of developing EPG technology and non-standard equipment for it, the task was set to create a complex for the utilization of the entire composition of the organic part of solid waste, which would provide environmental safety for emergencies. The source products must be environmentally friendly and will have economic value and practical application in the field of district heating, and the technological cycle must ensure a minimum amount of residual waste during their subsequent safe disposal. Capital and operating costs of the complex should be significantly less than foreign models of similar plants and should provide autonomous operation using its own energy resources.

Consumers of raw materials can be local city and town authorities, which use the obtained liquid fuel in local boilers for heating the residential area, which can significantly reduce the payment for heating and hot water for residents of the neighborhood. And part of the received electricity can be supplied to the city electric networks, and due to this, the cost of electricity for the inhabitants of this residential area can also be significantly reduced.

The block diagram of the infrastructure of the neighborhood with flows of organic waste and installations for their utilization with the production of alternative fuels and their combustion in the boiler room is presented in Fig. 1 [3; 4].

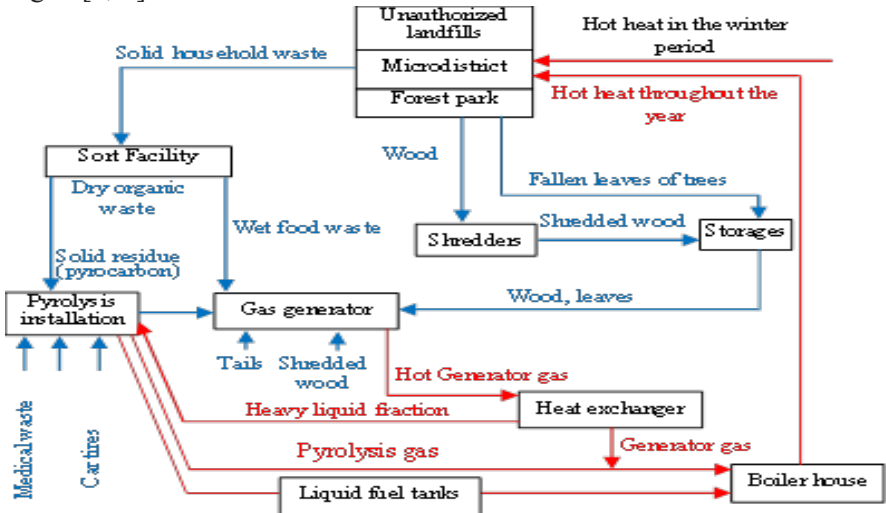


Fig. 1. Block diagram of the infrastructure of the neighborhood with streams of organic waste and installations for their utilization to obtain alternative fuels (blue arrows indicate waste streams, red arrows for obtaining alternative fuels and their use)

A characteristic feature of this technology is the production of its own liquid and gaseous fuel, electricity, which allows to ensure the autonomous operation of this complex, without the use of traditional energy resources, which is especially important for Ukraine at the time of the energy crisis. A general view of an industrial design of a pyrolysis plant is shown in Fig. 2.



Fig. 2. General view of laboratory experimental equipment in the Research Center for Pyrolysis Technologies and industrial design of the installation

Environmental friendliness and efficiency of the complex is achieved by introducing a new sequence of operations with a combination of BCP technology of polymer waste, medical waste, polymer packaging, worn car tires, etc. and dual-zone circulating gasification of various types of wet waste such as wood, paper, cardboard, fallen leaves and twigs and other organic wastes with a moisture content of more than 15%.

The intermediate output components of one technology are interconnected with the input components of the second technology, which will, due to hot pyrocarbon improve the energy parameters of wet waste and increase the specific output of generator gas and its calorific value, due to heat recovery of flue gases, reduce energy consumption for drying wet waste, and, through the use of its own generator gas in gas-piston power plants to provide energy-independent technology of thermal utilization of the entire volume of organic waste and additionally supply electricity to the neighborhood. The use of liquid fuel in city boilers will provide residents with cheap heating and hot water. In addition, the selection of heavy resins from the generator gas and their deep decomposition in the gasification process and the selection of high molecular weight hydrocarbons and other toxic components in the process of BCP polymer waste with deep thermal decomposition, provide environmental safety of this method of thermal utilization of organic waste.

Reconstruction of existing boilers by introducing advanced equipment with full automation, will increase the amount of heat produced at lower cost and in a shorter time compared to the construction of new boilers and

energy savings, which is relevant today. As practice has shown, the average payback period of investments in the transition of boilers from traditional fuel to alternative - 2-3 years, and as a result of modernization, operating costs for heat production of the boiler house will be reduced by at least 20 % [3].

Based on the Law of Ukraine of 14.01.2000 «About alternative types of liquid and gaseous fuels» [6], this approach will not only minimize the cost of disposal of various wastes and harmful substances, but also significantly raise the economic situation in the region, improve the environmental situation and will create new jobs.

Waste project management is based on the dialectical unity of economic, organizational and administrative management methods. A more detailed decomposition of management functions is provided by building an organizational structure (OBS) [7] for managing an organic waste recycling project. The main tasks of complex management by the technology «Ecopyrogenesis» are shown in Fig. 3.

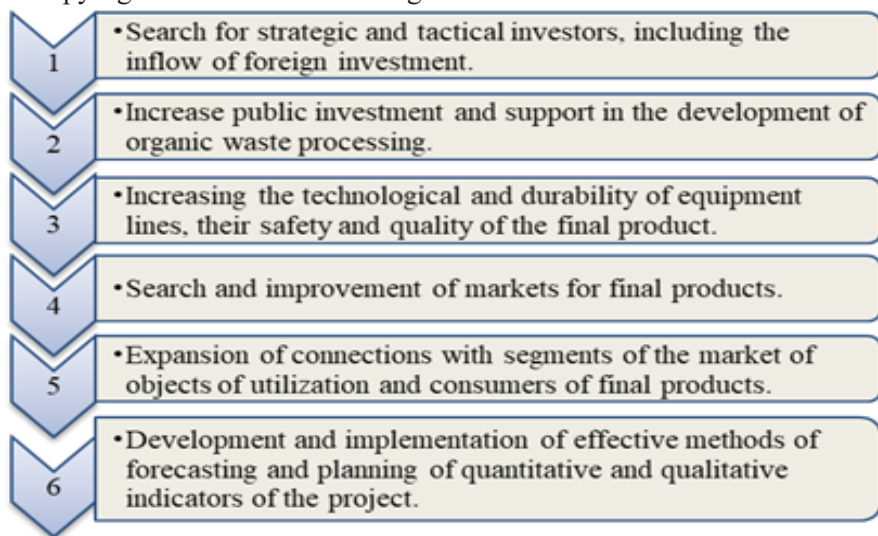


Fig. 3. The main tasks of the processing complex management by the technology «Ecopyrogenesis»

The economic attractiveness of the project increases with the increase in the amount of raw materials that are utilized, respectively, increases the number of useful energy products and decreases the payback period of the equipment.

Measurements and calculations of the main indicators of environmental safety of EPG technology and compared with VAT on specific emissions

showed that all indicators of raw materials and technological emissions meet the environmental standards of European countries [8]. The implementation of the project will have a number of positive socio-economic consequences for Ukraine and the Southern region: it will have a demonstrative effect, because for Ukraine the introduction of high-performance facilities for solid waste disposal will be performed for the first time; will lead to the improvement of the ecological climate in the region, will increase the allocations to the budgets of all levels, including for social needs; revive economic activity by involving local designers, engineers, contractors and manufacturers to implement the project; improve the overall efficiency of secondary resource processing and thus improve the position of related companies in this market; will have a positive impact on the preservation of jobs of employees directly or indirectly dependent on the activities of related companies.

The innovative project on «Ecopyrigenesis» technology uses new ideas, scientific theories and concepts. This resource has a significant specificity due to the fact that the use of research results as a resource requires the use of special methods and procedures that allow the effective application of science and technology in the implementation of knowledge-intensive projects. Such enterprises are the most vulnerable, as this area is characterized by high cost and duration of research and development (R&D), the use of expensive equipment, long production cycle, dependence on contractors and suppliers, the need and high cost of intellectual property protection and complexity market forecast [10].

The operation of such an enterprise is associated with the probability of dangerous situations of various kinds, so the urgent task is to assess the levels of hazards at all stages of the management process to ensure reliable, safe operation and management of the enterprise as a whole [11; 12].

In the course of risk analysis, it is important to study the nature of the risk, taking into account the impact of each component and a detailed meaningful description of the type of risk.

Today, for the waste processing enterprise, administrative factors have serious effects, first of all, it is the existing inconsistency of actions of municipal, regional, state structures that control, supervise and regulate the activities of enterprises - participants in the waste management market. This situation leads to «double control», hinders the economic activity of market participants. In addition, there is no normative mechanism of «absolute transparency» of waste generation and movement in the cycle of collection, processing and production of by-products from these wastes, the emergence of regional and municipal protectionist measures aimed at maintaining the existing waste management system.

The source of new risks may be the likelihood of conflict of interest

of stakeholders (designers, managers, workers, suppliers, population, community, consumers of products of different groups and categories) in the decision-making process (Fig. 4).

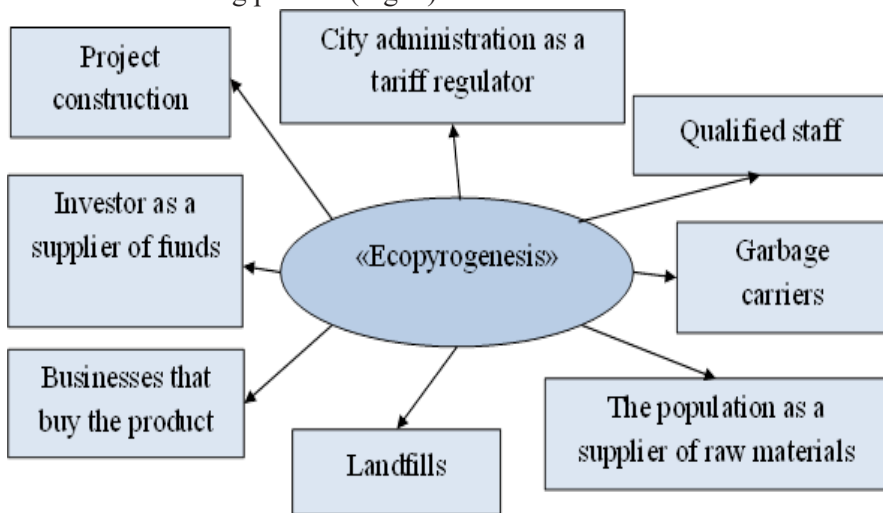


Fig. 4. Interaction of stakeholders of the company «Ecopyrogenesis»

The risks are compounded by non-transparent control over compliance with sanitary and environmental legislation and non-liability of violators, the existence of additional, duplicative functions and powers of different intersecting agencies, and ultimately lead to non-transparency of waste management and control system and complicate leading business in this industry.

Measures of administrative influence on violators of environmental legislation are insufficient: low fines and weak police control are not able to seriously affect the situation and timely identify violators, leaks of harmful substances, control cleaning equipment of enterprises, apply severe sanctions to violators.

An important social issue is the emergence of protest sentiments of residents of those areas where the construction of a new solid waste disposal plant is planned. In addition, waste sorting and transportation companies require a low-skilled workforce for a significant number of jobs and specialties. These jobs are not prestigious for the local population, but the emergence of foreign labor during unemployment will create additional social tensions. And it is necessary to consider that at realization of the enterprise on utilization of MSW, protest moods in a society will only amplify irrespective of a place of their deployment.

The manifestation of these risks leads to violations of construction

deadlines, overspending, non-compliance with the requirements for the end result, deterioration of the quality of the project, products and services, which in turn leads to reduced profits and often large losses. During the project life cycle, it is necessary to constantly re-evaluate risks and increase management efficiency, focusing on the risks that have the highest priority [8; 9].

Conclusion: Innovative technology Ecopyrogenesis is a solution to the problem of accumulation of large amounts of solid waste and the search for alternative clean energy sources. Provides ecological safety of the environment, is ecologically safe and will have economic value and practical application. Production of own liquid and gaseous fuel, electricity, allows to provide autonomous work of this complex, without use of traditional energy resources that is especially important for Ukraine at the time of energy crisis.

The implementation of the project will have a number of positive socio-economic consequences for Ukraine and the Southern region.

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## **EVALUATION OF EFFICIENCY OF RESOURCE-SAVING DEVELOPMENT MANAGEMENT OF AGRICULTURAL ENTERPRISES IN THE CONTEXT OF ENVIRONMENTAL SECURITY OF THE COUNTRY**

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Agriculture is one of the priority sectors of the economy and society in general. However, the agriculture usage of aggressive and harmful production methods, which are aimed at the economic development of the enterprise, increasingly leads to a conflict of interaction between economic activity and the natural system upon the whole [1]. One of the mechanisms of ensuring the greening of agricultural production and increasing the environmental efficiency of all types of resources, including natural, is the introduction of resource-saving management of the enterprise [2].

The effectiveness of management of resource-saving development of

agri-food enterprises of Ukraine is the result of resource-saving measures and rational use of all types of resources, which operates the process of quantitative, qualitative and structural changes and affects the transition to a new quality [3].

The state of solving environmental problems caused by agricultural activities, as well as losses suffered by agriculture activity due to industrial emissions and other factors of environmental degradation in areas of agricultural production, can be assessed by an environmental efficiency system of enterprenurial resource-saving development management. Based on the assessment of listed indicators, it is necessary to ensure the integration of environmental interests and principle development in management decisions.

In order to assess the economic efficiency of resource-saving development management, agri-food enterprises of various ownership forms were selected in Poltava, Zaporizhia and Luhansk regions. The choice of these areas is justified due to the dynamics of agricultural production of enterprises in 2015-2019 (Table 1).

**Table 1**

*Dynamics of agricultural production of enterprises of the Ukrainian regions for 2015-2019, billion UAH\* [formed on the basis of 4, 5]*

<b>Region, Oblast</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>Average value</b>
Vinnitsia	18221	21319	51111	56521	57169	40868
Volyn	6434	6559	15835	16321	16541	12338
Dnipro-petrovsk	15141	15183	37617	38618	42468	29806
Donetsk	6938	7513	18422	16662	20261	13959
Zhytomyr	8063	9407	24256	27114	27363	19241
Zakarpattia	4096	3965	8214	8781	8858	6783
Zaporizhia	10056	9928	24466	20952	27137	18508
Ivano-Frankivsk	5697	5795	13512	13686	13301	10398
Kyiv	14154	15545	35902	44498	40802	30180
Kirovohrad	11000	12038	27723	33437	35995	24039
Luhansk	4036	4816	11573	12628	14448	9500
Lviv	9025	9255	22029	22819	23004	17227
Mykolayiv	8951	9714	22888	24280	25976	18362
Odessa	10642	11881	31634	31983	28279	22884
Poltava	16661	17213	36721	45466	43515	31915
Rivne	6409	6723	16452	16861	16753	12639

Sumy	9848	10193	27108	30168	30176	21498
Ternopil	8146	8524	23888	24800	24252	17922
Kharkiv	14680	15648	35373	37525	38463	28338
Kherson	10836	11232	27147	27290	28559	21013
Khmelnny-tsky	11599	12549	36103	37022	35926	26640
Cherkasy	14622	14984	33570	41226	40276	28936
Chernivtsi	4287	4286	10198	10723	10249	7948
Chernihiv	9925	10372	28733	31915	31214	22432

*\* The data are given without taking into account the temporarily occupied territory of the Autonomous Republic of Crimea, Sevastopol and parts of the temporarily occupied territories in Donetsk and Luhansk regions.*

According to the cluster analysis conducted by the authors, all regions of Ukraine are divided into 5 clusters, which are characterized by the average production of agricultural products of enterprises, calculated for 5 years (Tables 2).

**Table 2**

*Distribution by clusters of agricultural production of Ukrainian regions [formed by the authors]*

Cluster	Region	Agricultural products
Cluster 1	Vinnitsia, Poltava, Kyiv	>30 billion UAH
Cluster 2	Dnipropetrovsk, Cherkasy, Khmelnytsky, Kharkiv, Kirovohrad, Odessa, Chernihiv, Sumy, Kherson	20-30 billion UAH
Cluster 3	Zhytomyr, Zaporizhia, Mykolayiv, Ternopil, Lviv	15-19,9 billion UAH
Cluster 4	Donetsk, Rivne, Ivano-Frankivsk, Volyn	10-14,9 billion UAH
Cluster 5	Chernivtsi, Zakarpattia, Luhansk	<9,9 billion UAH

In order to conduct an objective assessment of the management effectiveness of resource-saving development of agri-food enterprises of Ukraine for analysis were selected:

- enterprises of Poltava region as a leader in the production of agricultural products (UAH 31915 billion);
- enterprises of Zaporizhia region, which are in the 3rd cluster, according to the indicators of agricultural production, which is characterized as an average level (18508 billion UAH);
- enterprises of Luhansk region, which are characterized as one of the lowest indicators of agricultural production (UAH 9500 billion).

The management of resource-saving development of agri-food enterprises should be represented as a complex process related not only to improving economic and social efficiency, but to the environment, since nature is the contributor of all resources, including material ones. That is why the last group of indicators that characterize the effectiveness of resource-saving development of the enterprise, are environmental indicators (Table 3).

**Table 3**

*System of indicators for assessment of ecological efficiency of resource-saving development of the enterprise of agro-food area [formed on the basis of 6; 7; 8]*

<b>№</b>	<b>The name of the coefficient</b>	<b>Characteristics of the coefficient</b>
1	Content coefficient of natural resources	The ratio of the cost of used natural resources to net sales revenue
2	Natural resource efficiency	The ratio of net sales revenue to the cost of used natural resources
3	Coefficient of environmental friendliness	Characterizes the level of harmful effects on the environment per unit of used products or services obtained through this process
4	Coefficient of resource intensity of the process	Characterizes the costs of energy, water, air, land and other natural resources per unit of used products or services obtained by this process
5	Coefficient of environmental friendliness of the object	The ratio of the purely beneficial effect to the used natural resources
6	Coefficient of waste content	The ratio of wasted materials mass reduced to a single volume, considering the differences in the degree of their harmfulness (danger) per unit of output
7	Coefficient of environmental friendliness of production	The difference between the cost of raw materials, which is considered as 1, and the cost of waste generated

The coefficient of nature intensity shows the cost of used natural resources to net income from sales. For enterprises of the examined areas, this indicator is optimal and is at the level of 0.10-0.11. The natural resource efficiency is the opposite to the previous one, so its level is also optimal and is in the range of 9-10 (Table 4).

The coefficient of environmental friendliness indicates the level of harmful effects on the environment, which the company carries out in the

process of economic activity. This coefficient for all groups of enterprises is at the level of 0.01, which indicates the high environmental efficiency of economic entities.

**Table 4**

*Ecological efficiency estimation of resource-saving management of the enterprise development in agro-food area [formed by authors]*

Coefficient	Region, Oblast			
	Poltava	Zaporizhia	Luhansk	Normative value
Content coefficient of natural resources	0,11	0,10	0,10	↓
Natural resource efficiency	9,18	9,75	10,16	↑
Coefficient of environmental friendliness	0,01	0,01	0,01	↓
Coefficient of resource intensity of the process	0,05	0,05	0,05	↓
Coefficient of environmental friendliness of the object	1,73	1,81	1,93	≥ 1
Coefficient of waste content	0,14	0,16	0,13	↓
Coefficient of environmental friendliness of production	0,86	0,84	0,87	→ 1

The coefficient of resource intensity of the process helps to determine the parts of water, energy, air, land and other natural resources cost used for production. This coefficient is at the same level - 0.05 for enterprises in Poltava, Zaporizhia and Luhansk regions.

The coefficient of environmental friendliness of the object represents the level of beneficial effect from the usage of natural resources. The highest level of environmental friendliness is characterized by the products of enterprises of Luhansk region, because this indicator is 1.93 and significantly exceeds the minimum allowable factor 1. Enterprises of Poltava and Zaporizhia region do not concede in terms of environmental friendliness and have coefficients of 1.73 and 1.81 respectively. Coefficient of environmental friendliness of production also has high indicators: Poltava region - 0.86, Zaporizhia region - 0.84, Luhansk region - 0.87, which represents an effective resource-saving policy of enterprises in order to improve environmental efficiency. The indicators of environmental friendliness of production and waste content

are interlinked, sequentially it is possible to make similar conclusions about the optimality of the values of the calculated coefficients.

Thus, in modern economic conditions, the activities of agri-food enterprises should be aimed not only at ensuring economic efficiency, but at promoting the conservation of land, water, genetic and other resources for future generations. The conditions for ensuring the environmental security of the country are the usage of environmentally friendly production methods as well as the most efficient usage of resources. A significant factor in ensuring the environmental security of the country is the usage of effective management methods for resource-saving development of agri-food enterprises.

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## **DEVELOPMENT OF BIOENERGY IN UKRAINE AS A DIRECTION OF STRENGTHENING ENERGY SECURITY**

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In modern conditions, diversification of energy sources, strengthening their environmental friendliness, creating conditions for energy independence of the state is an important condition for ensuring the economic security of Ukraine.

Alternative energy sources are non-fossil, renewable energy sources that constantly exist or periodically appear in the natural environment [1]. According to the Law of Ukraine “On Alternative Energy Sources” they include energy: solar, wind, geothermal, hydrothermal, aerothermal, wave and tidal energy, hydropower, biomass energy, gas from organic waste, gas from sewage treatment plants, biogas, and secondary energy resources, which include blast furnace and coke oven gases, methane gas, degassing of coal deposits, conversion of waste energy potential of technological processes [2].

According to the International Energy Agency, one of the most promising sources of alternative energy today is bioenergy. It will become the driver of energy growth in the world in the next five years, due to the acceleration of production and use of environmentally safe, socially acceptable and economically competitive energy [3]. Bioenergy is a large separate sector of the bioeconomy, the development of which will continue, and which will soon play a key role in the decarbonisation of electricity systems by providing a stable source of electricity with low carbon content.

Attention to bioenergy in Ukraine began to be paid much later than in other European countries. While Denmark, Sweden, Austria, Finland, Germany, the Netherlands and others. actively introduced and improved bioenergy technologies for 20-30 years, Ukraine began to develop this sector only in the late 1990s [4, 130].

Renewable energy sources (RES) play a significant role not only in the country's energy security, ensuring the transition to energy efficient and energy-efficient use and consumption of energy resources with the introduction of innovative technologies, but also in global energy in general

– their contribution to gross final energy consumption is now 18%.

Consider in more detail the share of energy from biomass in the structure of gross energy consumption of the European Union and Ukraine (Fig. 1).

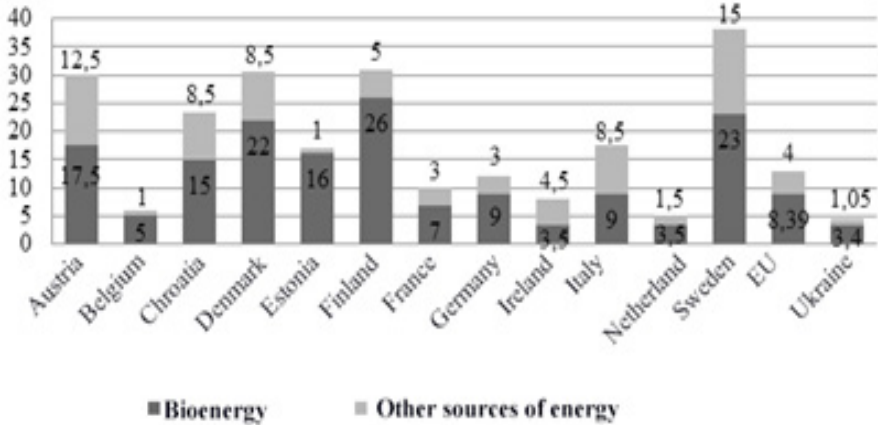


Fig. 1. Share of bioenergy and other types of RES in the structure of total energy consumption of the EU and Ukraine in 2018 (in %)

*Compiled according to the existing data [5; 6; 7].*

Bioenergy, as well as other types of RES, in the structure of gross energy consumption of the EU countries occupies a significant part – on average in the EU 8.39%. At the same time, some countries of the EU have a much higher level of bioenergy development than the EU average. Thus, in Finland the share of biomass in final energy consumption is 26%, in Denmark, Sweden – about 23%. Biomass and waste in the EU produce about 15% of the heat consumed, almost 4% of the electricity consumed and more than 4% of motor fuels today [8, p. 76].

The European Union is implementing the Energy Strategy 20/20/20, according to which the share of renewable energy in total final consumption by 2020 should be about 20% (27% by 2030), and EU member states should reduce greenhouse gas emissions increase energy efficiency by 20% and 20%. In addition, by 2020, at least 10% of public transport should run on biodiesel [9].

Regulation of the development of the bioenergy industry is based on state support of scientific support and innovative activities in the direction of improving new technologies for growing, processing biomass, manufacturing boilers and developing a national science-based strategy for the development of the industry.

As we can see, the economic and environmental situation requires new ways to provide humanity with energy, which involves the transition to

renewable energy resources as the only possible direction of sustainable existence and development. But, unfortunately, the pace of bioenergy development in Ukraine still lags significantly behind European ones. Currently, the vast majority of countries do not fully use the available bioenergy potential.

Therefore, the governments of these countries have developed strategies that take into account the priority goals – to increase the share of bioenergy and renewable energy sources in the energy balance of the country, and the possibility of achieving them.

Ukraine, following the unchanging global trend - the future of “green” energy – demonstrates the positive dynamics of energy development from biomass. The pace of development of Ukrainian bioenergy is still significantly behind European ones. However, the growth of its share in alternative energy can still be traced. Despite a significant leap in the development of solar energy (the so-called “solar boom”), bioenergy does not leave its leading position among all sources of renewable energy. According to the State Statistics Service of Ukraine, the share of bioenergy in alternative energy during 2015-2017 was over 80%, while in 2010 – 57% [10]. For comparison, in some EU countries the share of biomass from all renewable sources ranges from 30-40% (Luxembourg, Cyprus, Ireland) to 80-95% (Estonia, Latvia, Lithuania, Hungary, Poland, Finland) [7].

According to the Energy Balance (Table 1), in 2017, 58851 thousand tons of oil equivalent of energy were produced, of which 3618 thousand tons of biofuel and waste accounted for 6.15% of total energy production. The share of biofuels and waste is relatively small, but compared to 2010, when the share of biofuels and waste in the structure of energy production was 1.85%, the growth is obvious. In conclusion, every year the bioenergy sector not only maintains its position, but also develops steadily, as a result of which the share of biofuels and waste in the structure of energy production is steadily growing.

According to the National Plan, in 2017, bioenergy should replace 4.99 billion cubic meters of gas. In fact, in 2017, bioenergy reached 3.6 billion cubic meters. According to current indicators, according to the Bioenergy Association of Ukraine, in 2020 Ukraine will be able to replace no more than 4.4 billion cubic meters of natural gas with biomass.

In other words, Ukraine will not implement the National Plan for 2017 even in 2020. According to this plan, in 2020, bioenergy should replace 7.3 billion cubic meters of gas [30].

Such a pace of bioenergy development is clearly insufficient to achieve the goals approved by the National Renewable Energy Action Plan until 2020 and Ukraine's Energy Strategy until 2035, and therefore it will be very difficult to catch up with this "train".

**Table 1***Dynamics of energy production in 2017 & 2010 (thousand tons /%)*

Coal and peat	Crude oil	Petroleum products	Natural gas	Nuclear energy	Hydropower	Energy of the sun and wind	Biofuels and waste	Electricity	Heat energy	Total
2017										
13637	2208	-	15472	22453	769	149	3618	-	546	58851
23,17	3,75	-	26,29	38,15	1,31	0,25	6,15	-	0,93	100
2010										
33716	3590	-	15426	23387	1131	4	1458	-	-	78712
42,83	4,56	-	19,60	29,71	1,44	0,01	1,85	-	-	100

*Source: based on data [10]*

Renewable sources in the structure of primary energy supply in 2017 occupy 4.4%, while in 2010 they amounted to only 1.9%.

In the total energy supply in 2017, bioenergy accounts for 3.4%, wind energy – 0.1%, hydropower – 0.8%. For comparison, in 2010 these indicators were 1.1%, 0.003%, 0.8%, respectively. Comparing the growth rates of RES types, we can conclude that the fastest growing energy from biomass: in 2017 compared to 2010, the production of biofuels and waste increased by 148% [10].

According to the Energy Balance, the gross energy supply of biomass from 2010 to 2017 increased by 106%, in oil equivalent it is 1.57 million tons (from 1.47 to 3.04 million tons). Energy consumption of both heat and electricity produced from biomass in total energy consumption increased from 1.1% to 3.4% (Table 2).

Based on the analysis of table. 2 it can be concluded that during the study period the share of bioenergy in final energy consumption has been growing steadily. Thus, the share of energy from biomass in renewable energy sources in 2017 was 77%, while in 2007 – 63%. We emphasize that the share of biofuels and waste is much higher than the share of other types of RES combined.

The growth of the share of bioenergy both among other RES and in the overall energy balance is due to the reduction of traditional energy resources, high dependence of the country on imports, changes in the structure of agro-industrial production, constant growth of price disparities for energy, industrial and agricultural products.

**Table 2**

*Total energy consumption based on RES for 2007-2017, thousand t. /%*

Year	General supply of primary energy	including	Hydropower	Finally in %	Biofuel and waste energy	Finally in %	Energy of the sun and wind	Finally in %	Total energy from RES	Total supply of energy from RES	Share of energy supply from RES, %
2007	139330		872	0,6	1508	1,1	4	0,0		2384	1,7
2008	134562		990	0,7	1610	1,2	4	0,0		2604	1,9
2009	114420		1026	0,9	1433	1,3	4	0,0		2463	2,2
2010	132308		1131	0,9	1476	1,1	4	0,0		2611	2,0
2011	126438		941	0,7	1562	1,2	10	0,0		2514	2,0
2012	122488		901	0,7	1522	1,2	53	0,0		2476	2,0
2013	115940		1187	1,0	1875	1,6	104	0,1		3166	2,7
2014	105683		729	0,7	1934	1,8	134	0,1		2797	2,6
2015	90090		464	0,5	2102	2,3	134	0,1		2700	3,0
2016	94383		660	0,7	0832	3,0	124	0,1		3616	3,8
2017	89625		769	0,9	3046	3,4	149	0,2		3964	4,4

*Source: based on data [10]*

The total amount of costs for the development of bioenergy by type of fuel is also calculated (Table 3). Our indicators show that the creation of local material and technical base, as a basis for the development of domestic bioenergy, it is necessary to invest for the period up to 2021 UAH 26.9 billion, in the next 5 years – UAH 33.1 billion, and from 2026 by 2030 – UAH 39.6 billion.

Thus, the formation and successful development of bioenergy in Ukraine will not only bring direct economic benefits from saving money on fossil fuels, but also provide a significant improvement of the environment as a key component of environmental security. Regarding the general indicators of economic efficiency of bioenergy entities in Ukraine until 2030, given in Table 3, they indicate that the development of bioenergy will provide significant benefits to both the state and producers. Thus, in 2020, sales revenue of 4.09 million tons is projected. fuel in the amount of UAH 33.9 billion at a cost of UAH 26.9 billion, with a level of profitability of production of 25.8% and a payback of 4.7 years.

This payback period is associated with high costs in the initial stages of formation of perennial plantations of bioenergy crops, which will begin to

yield and return from the 2nd and 3rd years of the growing season, and some even later.

**Table 3**

*Forecast of expenditures for the development of bioenergy in Ukraine until 2030*

Indicators	2020	2025	2030
<i>Solid</i>			
Expenditures for growing raw materials, UAH million	4390	6341	8528
Processing cost, UAH million	2098	3048	4146
Cost of construction of enterprises for solid fuel, UAH million	2216	1652	2926
Total costs for solid fuels, UAH million	8704	11041	15600
<i>Liquid</i>			
Costs for the production of bio raw materials, UAH million	557	1132	1975
Processing cost, UAH million	238	484	568
Total costs for liquid fuels, UAH million	795	1616	2543
<i>Biogas</i>			
Bioresource costs, UAH million	1338	3095	3919
The cost of construction of biogas plants, UAH million	9233	7648	5068
The cost of processing raw materials into biogas, UAH million	536	1237	1567
Total costs for biogas, UAH million	11107	11980	10554
Expenditures for reconstruction and construction of communal boilers and boiler houses, UAH million	5613	7041	8725
Costs of burning solid fuel in boilers and boiler rooms, UAH million	703	1409	2189
Total costs, UAH million /	26922	33087	39611
million USD	1024	1258	1506
Possible revenue (\$ 315 per 1 ton), million USD	1288	1953	2678
Profit, million dollars USD	264	695	1172
Profitability level,%	25,8	55,2	77,8
Net income, million dollars USA	217	570	961
Payback period, years	4,7	2,2	1,6

*Source [10; 11], own calculations*

However, in 2025, profits will increase to UAH 51.4 billion, costs – up to UAH 33.1 billion, the level of profitability – up to 55.2%. The payback will be reduced to 2.2 years. In 2030, according to our calculations, the indicators will be as follows: revenue – 70.5 billion UAH, cost – 39.6 billion UAH, profitability – 77.8%, payback period – 1.6 years. Of course, under

the current conditions, such a prediction may not be feasible. Therefore, in the period up to 2030, the foundation of a strong material and technical base of domestic bioenergy [7, 22] should be laid. The reduction of energy intensity envisaged by the Energy Strategy of Ukraine will only bring our country closer to the current level of energy consumption of industrialized countries, but will not weaken the serious dependence of the domestic economy on energy imports. Only the development of alternative energy, including bioenergy, will provide Ukraine with its own, stable and relatively cheap source of energy, because biomass energy is a new stage in the history of domestic energy development. From the economic point of view, it has an indisputable advantage – availability, ability to quickly restore capacity and widespread biomass throughout Ukraine.

Therefore, despite the fact that in recent years there has been a significant shift in the development of the bioenergy sector, it is not necessary to stop there. It is necessary to develop the production of energy from biomass in order to achieve the indicators of the EU countries and meet the goals set by the Energy Strategy, which in general are quite realistic for the energy sector to achieve.

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## ECOLOGICAL PROBLEMS RELATED TO THE USE OF TRANSGENIC PLANTS

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In the human imagination, genetically modified organisms are associated primarily with the danger to the health of the population. According to experts, the risks to the environment are much more significant. After all, the first group of risks (for human health) can be assessed accurately enough to prevent them and almost eliminate them. In the case of environmental risks, the situation is much more complicated. It is especially difficult to predict long-term consequences, various cascading effects. If GMOs are released into the environment, reproduced, and passed on their genetic information to other species, it is almost impossible to return everything to its original state in the event of any adverse effects.

The following adverse effects of GMOs on the environment are possible: 1) the destructive impact on biological systems and loss of valuable biological resources; 2) creating new parasites and increasing the damage to existing ones; 3) production of substances that may be toxic to organisms that live or feed on genetically modified organisms and are not targets of transgenic traits; 4) adverse effects on ecosystems of toxic substances derived from the incomplete destruction of hazardous chemicals [1].

The problem of the emergence of superweeds and superpests is also among the main ones when considering the environmental risks associated with GMOs. Weeds are a group of plants with a certain set of adaptive traits that help them to exist in the environment, including among crops, against

competition from other organisms, as well as constant human influence.

The use of transgenic varieties with insecticidal properties (due to the Bt gene) immediately raised the question: will these varieties negatively affect biodiversity by affecting insects that are not a "target" of the transgenic trait? These are primarily beneficial insects such as bees. But Bt-proteins are highly selective. However, the possible negative effects associated with the non-target effects of GMOs on other organisms must be carefully weighed when assessing their biosafety.

Because the effectiveness of weed control with a combination of GMOs and the appropriate herbicide is higher than in conventional chemicals, the total amount of herbicides applied to fields with genetically modified varieties is lower than usual.

To determine the risk of possible adverse effects associated with the release of GMOs into the environment, a special technique has been developed that allows for a comprehensive and comprehensive assessment of their safety. This technique is used in all countries where GMOs are grown. Its main provisions are enshrined in several international agreements. The technique has proven itself in practice. No case of the negative impact of genetically modified organisms on the environment is known due to a careful assessment of the safety of all GMOs that are released into the environment [2].

In assessing the risk of possible adverse environmental consequences of the release of GMOs into the environment, information is taken into account regarding the systematic situation, the method of reproduction and dispersal, survival in the environment.

Particular attention is paid to information on the nature of genetic engineering modification: 1) a description of the DNA fragment embedded in the genome of the recipient organism; 2) data on the structure and functional compliance of the embedded DNA fragment, the presence of known potentially dangerous sequences, the location of the insert and the stability of incorporation, the number of copies of transgenes.

Information concerning the biological features of GMOs and the nature of their interaction with the environment, namely: 1) data on new traits and characteristics that began to appear or ceased to appear in a genetically modified organism in comparison with the recipient organism, especially those that may affect survival, reproduction, and distribution in the potential environment; 2) information on the genetic stability of GMOs, the degree and level of expression of the transgene; 3) activity and properties of the protein encoded by the transgene; 4) ability to transfer genetic information; 5) the probability of a sharp increase in the population of GMOs in the potential environment; 6) information on target and non-target organisms, the expected mechanism and result of the interaction of GMOs with them [3].

Today, the number of transgenic (genetically modified) plants already includes two hundred fields, pasture, vegetable, tree, ornamental and medicinal crops. For genetic engineering, there are no barriers that limit gene transfer in a traditional selection based on sexual hybridization. The source of new genes can be any organism – animals, plants, or microbes. Moreover, genetic engineers can change the structure of these genes to make them work more productively or during a specific period of plant development.

The main efforts of scientists are focused on protecting plants from adverse (biotic and abiotic) factors, reducing storage losses, and improving the quality of crop products. Breeders are attracted by the possibility of the purposeful genetic transformation of agricultural plants. Thus, a variety that has proven itself well in most economic characteristics can be supplemented by one missing feature, such as resistance to a particular disease [4].

Also, due to genetic modification, plants can perform a previously uncharacteristic role. They become a "factory" of drugs and food supplements or a tool for "soft" administration of drugs, vaccines, and essential food supplements. These are, for example, sugar beetroots, which accumulate low-molecular-weight fructans instead of sucrose, or bananas, which are used as edible vaccines.

Opponents of genetically modified plants rightly point out that the creation, testing, and seed production of transgenic varieties are monopolized by several multinational corporations, which can limit access to information about the adverse environmental consequences of the widespread use of GMO products. It will take several years for their environmental expertise and adaptation to the conservative tastes of consumers [5].

The guarantee against possible undesirable consequences of genetic modification of plants is the legislative regulation of their distribution and the development of related methods of environmental risk assessment. Many countries have already enacted laws to prevent the unauthorized distribution of transgenic seed and to monitor transgenes in crops, as well as the labeling of food products made from or with the addition of GMO products.

Plants weakened by adverse weather conditions are more easily affected by diseases and pests. Therefore, transgenic varieties resistant to frost, salinity, and drought, to a lesser extent require chemical protection, and the cultivation of such GMOs, which will also reduce the pesticide load on the environment.

Plant diseases not only reduce yields but also degrade product quality. At the same time, some microorganisms contaminate grain and other crop products with highly toxic metabolites. That is why the cultivation of GMOs, resistant to adverse environmental factors, will improve environmental safety and quality of life. GMOs that use mineral fertilizers more effectively will be able to significantly reduce environmental pollution by nitrates and

phosphates.

The most serious objections to GMOs are related to the assumption that their spread will lead to the emergence and rapid reproduction of resistant forms of weeds. The potential threat of the horizontal transfer of modified resistance genes deserves serious attention. Crossing weeds of the same genus can lead to weeds carrying herbicide resistance genes.

Several rules must be followed to avoid the spread of acquired resistance to transgenic toxins among insect pests. Insects should receive a high dose of toxin, which ensures the destruction of most pests and reduce the number of individuals potentially resistant to the toxin. It is necessary to alternate crops of transgenic varieties so that insect populations are consistently exposed to toxins of different mechanisms of action. Finally, it is necessary to create "reserves" of ordinary (non-transgenic) plants of the same species.

Another adverse consequence could be a reduction in the genetic diversity of wild and specially cultivated plants on our planet. Reducing the number of phytophages or suppressing phytopathogens can lead to the reproduction of controlled plant species and reduce the number of entomophagous, which will change the structure of agro- and biocenoses.

The number of varieties of genetically modified plants is limited, and if they completely displace local varieties, it will reduce varietal diversity. There is a danger that under changed conditions, the transgenic variety will behave unpredictably.

Today, around \$ 32 billion is spent annually on the chemical protection of plants from pests, pathogens, and weeds [6]. In this regard, attempts are being made in all possible ways, including through the media, to prevent the promotion of transgenic crops in promising agricultural world markets.

Usually, transgenic plants have a narrowly specific resistance to phytopathogens: in some cases, the inclusion of a single fragment of the virus isolated from a particular strain induces resistance of the plant to this viral strain, but not to another strain of the same virus. This reduces the practical value of transgenic plants. Therefore, the search for proteins that can induce nonspecific resistance of plants to phytopathogens. Several years ago, proteins were isolated that can induce nonspecific resistance of various plants to fungal and viral infections. Work has begun on the transfer of these genetically modified constructs into the genome of tobacco and potato cells. The results confirm the expression of target genes and the induction of a sign of resistance in transgenic plants simultaneously to several viruses.

Currently, American scientists have bred potato varieties resistant to the Colorado potato beetle, and soybean varieties resistant to glyphosate. Manufacturers are forced to carry out 4 to 8 treatments with expensive chemical insecticides to protect plantings from the Colorado potato beetle. Chemical insecticides are toxic to warm-blooded animals and humans. Also,

when using compounds of the same chemical class, pests develop resistance relatively quickly.

Monsanto has transferred to the genome of several potato varieties a gene isolated from the bacterium *Bacillus thuringiensis*, a species of *Tenebrionidae* (*Bt. f*). The toxic effect of the protein *Bt. f* is because it paralyzes the digestive system of the beetle. The content of endotoxin protein *Bt. f* in potato leaves varies from 5.4 to 28.3  $\mu\text{g/g}$  of raw weight, and in tubers - from 0.4 to 2.0  $\mu\text{g/g}$  (less than 0.01% of the total protein content in the tuber) [7].

Toxicological studies have shown that the *Bt. f* protein is safe for humans and non-target organisms. Safety is due to the specificity of its effect only on sensitive receptor targets, available only in certain groups of insects. In the soil, this protein degrades relatively quickly. As a result, the US Food and Drug Administration excluded *Bt. f* protein from the official list of potentially toxic substances.

The tops of transgenic potatoes carrying the *Bt. f* gene are actively eaten by the 28-spotted sun without any negative consequences for the pest, which confirms the high species-specific action of endotoxin.

For the last 30 years, bioinsecticides based on *Vasillusthuringiensis* (*Lepidocid*, *Dinel*, *Insectin*, *Enterobacterin*, *Novodor*, etc.) have been widely and successfully used in agricultural production in various countries. One of the main active components of these drugs is the protein *Bt. f*. The World Health Organization, as well as government regulators in many countries, have authorized the use of insecticides as a safe microbiological plant protection product for humans and the environment. Monsanto's transgenic potato varieties are approved for use as food in the United States, Canada, Japan, and other countries.

The tasks that were solved when assessing the biosafety of transgenic potato varieties presented by Monsanto were as follows: 1) check the compliance of genetically modified constructions with the claimed constructions; 2) determine the level of endotoxin accumulation in plant tissues and the stability of this level in subsequent generations; 3) to study the possible influence of transgenic plants on the species composition of rhizosphere and epiphytic microorganisms; 4) to carry out the comparative characteristic of resistance of transgenic grades to the most widespread activators of fungal, bacterial, and viral diseases, to pests of crops; 5) to carry out a comparative assessment of tuber preservation; 6) to study the possibility of resistance of the Colorado potato beetle to endotoxin *Bt*; 7) assess the compliance of economically useful traits due to the introduction of foreign genes into the recipient plant [8].

Currently, various methods of genetic engineering have become an integral part of modern molecular and cell biology. The main tasks of genetic engineering in biotechnology of plants include their genetic transformation,

the expression of foreign genes, and its regulation in the cells of transgenic cultures.

Three outstanding achievements in plant physiology have provided the basis for the integration of recombinant DNA technology into genetically engineered plant biotechnology: first, the discovery of phytohormones that regulate plant growth and development, secondly, the development of methods for culturing plant cells and tissues on media containing macro- and micronutrients, sugars, vitamins, and phytohormones (these methods allow growing cells, tissues, and whole plants under sterile conditions and carry out their selection on specific media).

Soon, the potential of genetically engineered plant biotechnology will increase significantly due to the development of methods for the genetic transformation of cellular organelles. Further, advances in genetically engineered plant biotechnology will depend on an understanding of the peculiarities of transgenic expression. Currently, we can talk about the emergence of nuclear engineering aimed at modifying nuclei using foreign and recombinant nuclear proteins and specific structural modification of foreign genes. The transgenic expression can be increased by attaching to foreign genes nucleotide sequences strongly associated with the nuclear matrix.

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# **MANAGEMENT OF QUALITY AND ECOLOGICAL SAFETY OF AGGREGATE AGRICULTURAL PRODUCT: RESOURCE SAVING, MARKETING INNOVATIONS, STATE INITIATIVES**

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Perspectives for the reproduction of the domestic agricultural sector on a new basis should focus on creating a collective agrarian product of high quality and environmental safety, which correlates with modern European and world principles. Modern society puts forward new requirements for the quality of collective agricultural product at all stages of its creation and market realization. Quality is an integral indicator of characteristics of agricultural processes (both current and collective), the organization of agricultural production relations, granting of relevant services, the properties of the final agricultural products, the main lever of consumer preferences.

The process of formation of agricultural products by quality parameters and bringing the relevant properties to the consumer has a significant number of features that should be considered in a general and local reflection: in the formation of strategic agricultural policy and as projected commercial calculations at the level of individual management entities. Based on the author's analysis, we propose to the conceptual consideration and practical consideration at the level of the agricultural sector of the national economy from the standpoint of ensuring the required level of quality and environmental safety such specifications of agricultural products:

- first, the process of production and creation of an agricultural product reflects to the greatest extent (in comparison with other types of economic activity) action of natural, in particular biological factors, as external influence (climatic and weather conditions), and internal influences (we are talking about the means of production, including fodder lands, seed and breeding base, livestock, etc.), is different by seasonal, involved in agricultural cycles and the appropriate use of a significant number of natural resources;

- secondly, today agricultural products are creating in Ukraine in the conditions of intensive environmental loads, unsatisfactory condition of a in weighty part of territories, in particular agricultural purpose, on separate environmental parameters, first of all by level of pollution of air, waters, soils - chemical, physical, biological, etc., violation of agro technical and agrochemical cycles in the culture of management of agriculture, branches of plant growing, animal husbandry, etc.;

- thirdly, there is insufficient use of environmentally-oriented utilization methods, reutilization of resources, for example, the practical absence at the level of individual domestic farms of the use of modern methods of using agricultural waste as a secondary raw material, etc.;

- fourth, regulatory, methodological-organizational and technical regulation of quality and safety of agricultural raw materials and finished products in the conditions of domestic agricultural market is imperfect it is a question of essential lag behind the European level of domestic system of technical regulation of agricultural production, its metrological maintenance and qualimetric estimation;

- fifth, a small number of examples of implementation of international quality management systems (ISO series) and safety (HACCP) of production in domestic agricultural enterprises, which, in turn, reduces the competitiveness of domestic agricultural products in the world, including the European market.

Economic research of domestic agricultural production, in particular from the standpoint of conceptually quality and environmental safety agricultural products level improving, reflect the need for original solutions and relevant author's propositions. Namely, it is important to develop the methodological base of agrarian economic opinion in terms of understanding the essence of certain established terms and their proper application in the practice of maintenance of agricultural management. For this purpose, we conducted comparative research of the use of categories "quality" and "environmental quality" for agricultural products, reflected them from the standpoint of social significance and compliance with established standards for technical, technological, sanitary, environmental indicators.

It is appropriate to create an agricultural product in the following methodological ways:

- 1) management of quality - quality management;
- 2) technical regulation of the cost of quality;
- 3) determining the cost of quality;
- 4) environmental quality management;
- 5) quality marketing.

Each of these components will reflect in a separate perspective the economic quality (in close interaction with environmental quality) of the

processes of forming the quality of agricultural products. The use of updated methodological approaches related to the total improvement of quality on domestic agricultural enterprises will increase the quality, safety and competitiveness of agricultural products, increase production per hectare of cultivated area, which correlates with the cost of food, will allow it to enter foreign markets equally and at the same time to satisfy the raised requirements of domestic consumers.

At the same time, the importance of improving the quality of agricultural products is connected with the fact that the insufficient level of quality has negative economic, social and environmental consequences:

- economic consequences are reduced profits of enterprises, loss of material and labor resources spent on manufacturing, transportation and storage of bad agrarian products, additional costs for equipment repairs, elimination of certain disparity, etc.;
- social consequences are manifested in a decrease in the growth rate of kindness of the population, decrease in the culture of agricultural production and consumption, a decline in the prestige of domestic producers and their products, some other aspects;
- environmental consequences - prevention of damage to the environment in conditions of increased environmental risks of agricultural activities, as these are additional costs of the enterprise for the restoration of soils involved in agriculture management, wastewater treatment and more.

In this context, it is important to apply modern, diverse approaches to the development of the quality economy at the level of individual domestic agricultural entities. It is necessary to identify economic and commercial initiatives by managers of agricultural enterprises, use alternative ways to attract sources of funding, investment, implementation of effective leasing technical schemes, internal incentives for agricultural production of high quality and environmental safety at a particular agricultural enterprise [2; 5; 8; 9]. One of the ways to practically improve the development of agricultural management is the production of agricultural products of high quality and environmental safety, which in Ukraine has received the official name "organic products".

In the considered regularity of management of processes of production of organic agricultural products in Ukraine the leading place belongs to the system of governmental management as the most influential, effective and constructive on the basis of performance by it of such functions as regulating, controlling, estimating, supporting and some others. The regulatory function of governmental management in the field of domestic production of agricultural products of organic origin is reflected by the development of a sufficiently effective agrarian policy aimed on the developing the market of organic products. In particular, we are talking

about such manifestations of the effectiveness of agricultural policy in considered direction as legal regulation based on the adoption of relevant laws, regulations, technical regulations governing relations as to organic production procedures in Ukraine and requirements for quality indicators of organic products according to the principles of relevant European legislation. Ukraine's cooperation with international technical institutions is important, in particular those that form the basic standardized requirements for organic production - IFOAM, FAO, Codex Alimentarius, WHO, etc. At the same time, it is a question of technical regulation of adapted requirements for quality and conformity of organic food products based on intergovernmental framework standards, basic standards or directives, international private standards and some other regulatory and technical documents in Ukraine. The regulatory function of governmental management is closely related to the control function, which should be developed through an effective system of monitoring the compliance of food products with organic status. For example, it is a mandatory certification confirmation of the "organic" activity of domestic agrarian producers, preserving the properties of organic food products not only at level of its creation, but also at the level of continuation of logistics flows - processing enterprises, wholesale and retail bases, trade establishments, individual traders etc.

A separate component in the system of governmental regulation is the labeling of organic products, which in an informationally concise, in particular graphic and pictorial form confirms its origin and compliance. A significant number of leading countries in the production or consumption of organic products have their own, legally approved labels, which are well known to domestic consumers, whose products are presented on the market. These are the labels of organic products, eco-products or bio-products, the name of which differs in different countries. For the domestic market of organic products, it is important not only to label as such, but also to bring its information content and other labeling information to the consumer. It is about the importance of increasing general level of culture of both production and consumption in Ukraine [3; 4; 6].

Important in terms of perspective for the development of the domestic market of organic products is the supporting function of governmental regulation, which is implemented through certain aspects of stimulating producers of organic agricultural products (and not only), in particular in various forms. As example for Ukraine might be experience of a large number of countries, including Switzerland, Denmark, Germany, Austria, the United States and others, which are leaders in terms of world market share of organic products. In the context of the above, marketing approaches to the perspective of organic products production in Ukraine should be updated, taking into potential consumers. We conducted a sociological

research on the perspective for the development of the market of organic products in the city of Chernivtsi.

We found the opinion of consumers based on a survey to learn the population's demand for relevant products. It is worth noting that today in Ukraine a lot of work is being done by various governmental institutions to support organic agriculture as a technological base for the production of organic food at level of organic. In particular, it concerns the development of the system of legal regulation, which is reflected in the Law of Ukraine "About production and circulation of organic agricultural products and raw materials", where there are separate articles that providing state support as management entities engaged in production and circulation of organic products (raw materials) [1; 7; 10].

In addition, the direction of scientific support of production and circulation of organic products (raw materials), which is entrusted to the National Academy of Agrarian Sciences of Ukraine, science-research and other institutions, educational institutions is important. Other forms of state support for organic agriculture in Ukraine should also be noted , for example, direction of state policy in the way of greening agricultural production, compliance with the state target program of Ukrainian rural development on the basis of organic production, creating economic conditions for development, investment and innovation model. Based on the conducted research, we should make a conclusion about the significant perspective for quality management and environmental safety of aggregate agricultural product, which is determined by socio-economic prerequisites of improvement, the availability of necessary agricultural resources, restructuring relations between economic entities in the domestic agricultural sector.

There are important opportunities to improve the quality of domestic agricultural products in terms of regulated technical compliance and development of appropriate control and evaluation systems; in terms of environmental quality, which reflects the degree of environmental safety of production and consumption of agricultural products; in terms of economic quality in the activities of the agricultural enterprise, which includes the management of processes for determining the value of product quality, environmental quality management and economic evaluation of relevant processes. A separate important aspect in Ukraine is the management of organic production processes, the creation of agricultural products of "new generation of quality and environmental safety", the prospects of which are reflected in state policy of Ukraine and other areas of state regulation and in the perspective of potential consumer preferences. Because of the latter, the target market segments of domestic consumers, ready to buy organic food and include it in the daily diet, are expanding. Indicated in general will

be the perspectives for environmental and economic development of the agricultural sector of the national economy.

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## **ANALYSIS OF FOOD SECURITY AT THE NATIONAL LEVEL**

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Food security is an important component of the national security, which guarantees social, economic and political stability in the society, sustainable economic development of the state as a whole. Ensuring food security is of strategic importance to each country at both national and global levels and is possible only by combining the efforts of every country through the use of scientific recommendations and practical experience for solving food problem in the world.

The complexity of the situation consists in the fact that in the field of ensuring food security the key problems are connected as to pursuing agro-food, social, economic policy, the real trends in food production development, national food market, identifying the nature of its dependence on the world food market, actual demand and social status of the population, opportunities for consuming valuable, high-quality food products harmless to human health [1].

Our country has the potential to significantly increase its position as a manufacturer of farm and food products, provided attracting investment to increase the competitiveness of products, development of the necessary agro-industrial infrastructure, ensuring the standardization of food products in accordance with international standards and thus become one of the world's major food product suppliers. Creating conditions for stable food security of the population is a priority task of the state policy in modern conditions, irrespective of the territorial level [2].

According to the methodology of the Food and Agriculture Organization of the United Nations (FAO), the criterion of food security is the production of grain per capita as the main food crop. Calculations maintain that the world's population satisfies 56% of food needs by grain. The condition of the state food security is assessed by the UN FAO according to two indicators: the volume of transitional grain stocks stored till the next harvest and the level of world grain production per capita. The value of transitional grain stocks is calculated as a percentage of annual world grain consumption, or in days of its global consumption. A 60-day transitional stock, i.e. 17-20% of all grain

consumed in the country, is considered safe. This indicator characterizes the stability of food situation in the world as well as the stability of the world food market concerning possible impact of such destabilizing factors as poor yields, natural disasters, financial crises, etc. [3].

The indicator of the average per capita grain production is used to assess the state of food security of separate countries or the economic community of countries, and also to analyze trends of the world food market development for a definite period of time. It gives the idea of whether all strata of the population, irrespective of the social status, have the opportunity to receive the required amount of food products. The world practice has shown that a stable food situation is achieved by producing 800 kg grain per capita for a calendar or agricultural year, which meets both the requirements of the population in food products and the demands of livestock farming for feeds [4].

Using the methodology of the World Food and Agriculture Organization (FAO), according to which the volume of grain production per capita is used to assess the state of food security, we determined the dynamics of food security in Ukraine (Fig. 1).

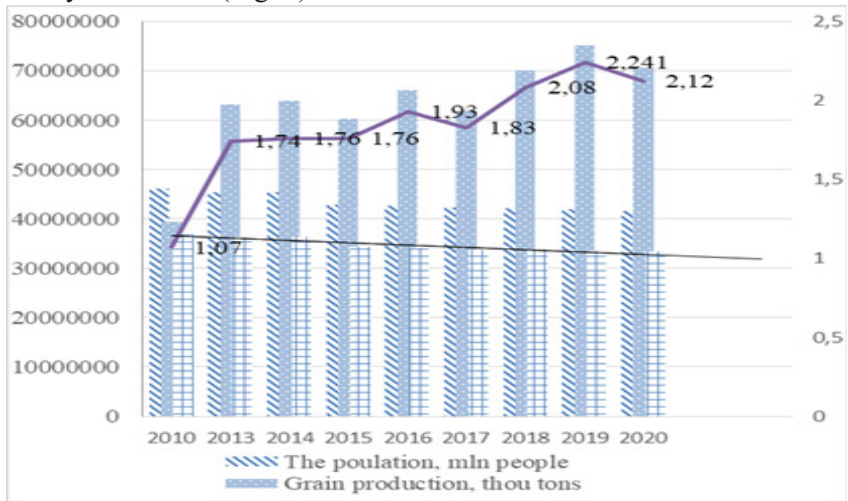


Fig.1. The dynamics of food security coefficient of Ukraine for 2010-2020 [made up by the authors based on 5]

The food security coefficient for the study period increased from 1.07 p.p. in 2010 to 2.12 p. p. in 2020, however, in comparison with 2019, the level of food security decreased by 0.12 percentage points. The increase in food security coefficient is primarily stipulated by the decline of the population in the country, and as evidenced by the forecast line of the

population trend – there is a tendency to its decrease.

Thus, Ukraine, having in fact absolute security in supplying grain to the population, must work hard to increase livestock farming products manufacturing and improve the population well-being in order to reduce the share of food costs to the level of European countries.

The most important feature of food security is the degree of provision with domestic food products. For objective reasons, depending on the natural and climatic conditions, various states occupy different positions concerning the provision of the population with food products. Therefore, the state can provide some products itself, others – partially, when the opportunities of attracting other countries are used, and in the third case, food products are provided from only the sources of other countries [6].

In the international statistics, food security is measured primarily by the dietary calories of the daily food ration of the population. In the process of monitoring the condition of food security, the energy criterion is used (daily dietary calories of a person). The critical limit (according to FAO) is 50% of the average statistical human physiological norm (3000 kcal /day). Dietary calories, which are lower than the physiological human requirements, make proper nutrition impossible (Table 1).

**Table 1**

*Energy value of the average daily diet of Ukraine's population in 2014-2018, kcal. [made up by the authors based on 7] (per person)*

Indicator	2014	2015	2016	2017	2018	2019	2019 +, - till 2018.
Calorie content. kcal	2,939	2,799	2,742	2,707	2,706	2,691	-15
Change to the threshold level, %	117.6	112.0	109.7	108.3	108.2	107.6	-1.5
products of plant origin	2,090	2,008	1,952	1,926	1,919	1,891	-28
in % to total energy %	71.1	71.7	71.2	71.1	70.9	70.3	-0.6
products of animal origin	849	791	790	781	787	800	+13
% to total energy %	28.9	28.3	28.8	28.9	29.1	29.7	+0.6

In this connection, the catastrophic demographic situation in Ukraine has developed. As a result of malnutrition, systematic deterioration of public health, morbidity and mortality are increasing. Thus, the problem of food security of the population, increasing its living standards is of paramount importance.

According to the Food Organization of the United Nations, the average daily dietary intake in the EU varies within 3,400-3,500 kcal, and in the US - 3,900 kcal.

During the period of 2014-2019, the dietary intake pattern of the population was higher than the threshold level, the maximum decrease occurred in 2019 (by 7.6% of the threshold indicator), and the highest index was in 2014. In 2019, the dietary calories of the country's population made 2,691 kcal.

The share of consuming products of animal origin is by 55% lower than the established standard of the daily food intake and ranged from 849 to 800 kcal. However, a positive trend is the increase in livestock farming food products in the people's diet.

The other side of the country's food security consists of every person's food security, first of all, economic affordability of the food basket, a person's ability to buy the food products he (she) needs. The main indicator of this is the level of food costs, which in the world market is calculated as a percentage of the purchasing power parity. The issue of food products' accessibility, as an important element of food security directly depends on the level of incomes, purchasing power of the population and the availability of food at reasonable prices. The increasing share of food expenses in the budgets of Ukrainian families shows a low living standard. Subsistence rate is also an important indicator [8].

According to the Ministry of Social Policy of Ukraine, the monitoring of the actual size of the subsistence rate indicates the existing problem of the ratio between the approved sum of the subsistence rate and its actual sum. In particular, for different social and demographic groups, this ratio made 41.9% -48.5%, which causes a significant decrease in the purchasing power of the population, especially low-income population [9].

Taking into account the strong agro-food potential and ability to maximally satisfy consumer demand for food products, the main negative trends in food security are:

- nutrition imbalance;
- reduction of own production volumes of separate products;
- consumption of many food products is below rational dietary intake levels, and the quality of nutrition is deteriorating;
- economic inaccessibility of food products because of general low level of the population's incomes;
- high differentiation of the population's living standards by social groups;
- imports increase in almost all food groups, which holds back the development of the national production [9].

COVID-19 is expected to worsen the general prospects for food security and nutrition. Food insecurity can occur in countries and population groups, which have not traditionally been affected. Preliminary estimates suggest that from 83 to 132 million people may be added to the total number of

malnourished people in the world in 2020, depending on the economic growth scenario (losses from 4.9 to 10 percentage points in the world GDP growth). The expected recovery in 2021 will result in reducing the number of malnourished, but still it will be higher than has been predicted from the pandemic scenario [9].

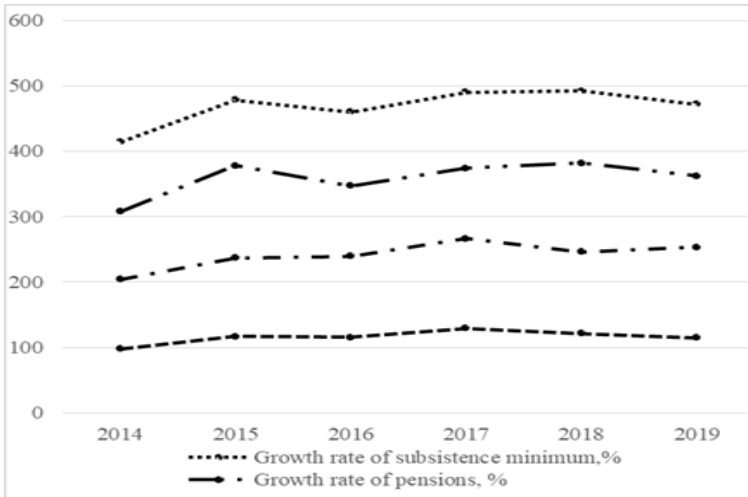


Fig.2. The growth rate of the population’s real incomes in Ukraine for a period of 2010-2019 [made up by the authors based on 5]

In order to hold up the increasing threat to food security, the state has to take the following measures:

- to approve the national consumption standards for all the necessary nomenclature of food products on the average per capita, as well as for certain sex and age groups;
- in order to reduce poverty of the population, the main priorities are: pursuing the policy aimed at leveling the development of regions, ensuring further economic growth of economic sectors, including the agrarian sector, creating conditions by the state for the development of labor potential of the impoverished population (especially in rural areas), strengthening the targeting of social assistance to socially vulnerable groups;
  - regional authorities have to monitor the minimum commodity bundle, calculated on the basis of the national consumption standards;
  - to develop food products’ quality control system close to the international standards;
  - to monitor food security provision;
  - to optimize the system of formation, storage and use of state food stocks [10].

Thus, the condition of food security of the country is determined by a wide range of indicators, which complement each other and require further improvement. We consider it expedient to apply a single system of food security indicators in Ukraine, which will allow assess realistically the condition of the state's food security and timely take appropriate measures to improve it.

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## IMPROVEMENT OF PROMOTION TOOLS FOR AGRICULTURAL PRODUCTS SALES IN THE FOOD SECURITY SYSTEM

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Market transformations in Ukraine have provided enterprises with opportunities for independent planning of their activities and at the same time caused challenges. One of such challenges is the lack of working capital and the lack of resources for quality product promotion. Combined research conducted in the field of operations management and marketing aimed at making time to see negative trends in terms of sales and respond to them by choosing the appropriate tools management.

In the food security system, sales promotion plays a special role for each group of countries, depending on their level of development. For high-income countries that are highly productive and produce more than they consume, stimulating efficient sales means reducing the cost of disposing of products that have not been consumed. For countries seeking to take a leading position in the world food market, including Ukraine, effective sales are part of the competitive strategy. In the world as a whole, according to FAO estimates, about 14% of food is lost in the stage after its production (post-harvest) before entering the retail system (FAO, 2019).

The system of stimulating sales of agricultural products has several dimensions: global, integration, national, regional, and micro-level. Each of them has its own tools and mechanisms that provide analytical, informational, marketing, and regulatory functions. We will focus our research on micro-level tools.

Advertising activity, which was actively developed for trade enterprises and other spheres of services, actively moved to the industry. Farmers, who are quite conservative about innovations in management, understand the need to attract and keep the interest of consumers and partners. Popular advertising and promotion tools are articles in specialized publications, exhibitions, television programs, and social networks.

The product life cycle mainly determines the choice of tools for its promotion. The level of competition, regulation of advertising at the state level, specification of product type, features of the target audience, etc. also have a strong influence.

For Olympus Agrotrade LLC, agricultural producer, we proposed to conduct an advertising campaign in a sequence of seven steps. Consider each of them.

Step 1. Identification of the target market.

Step 2. Defining the goals of advertising.

Stage 3. Formation of the advertising budget (Table 1).

**Table 1**

*Advertising budget*

<b>Cost components</b>	<b>Amount per year, thousand UAH</b>
Advertising souvenirs	7.5
Participation in specialized exhibitions	17.9
Other costs associated with marketing activities	20.5
Advertising spending budget	45.9

Step 4. Development of advertising message.

Step 5. Selection of advertising media. Developing an advertising appeal is important, but not key. The message begins to "work" only when it reaches the recipient.

To choose the media we need to understand the target audience, their preferences in communications. It can seem old-fashioned, but the local community prefers newspapers. So, to publish an advertisement in the local newspaper "Stepova Zorya" the company will need a very modest budget, less than 2000 UAH (Table 2). The newspaper is published once a week.

**Table 2**

*Advertising budget in the newspaper "Stepova Zorya"*

<b>Type of advertising</b>	<b>Square, per sm<sup>2</sup></b>	<b>Publications per month</b>	<b>Price, UAH per sm<sup>2</sup></b>	<b>For 6 months, UAH</b>
On the first page	5,4	4	7,72	1042,20
Inside the newspaper	5,4	4	6,27	846,45
Total	-	5	-	1888,65

Radio can be also useful for advertising during local and national fairs. Present outdoor advertising in the form of billboards can be considered as well. The main element of such advertising will be the positive emotional impact of text and illustrations, usually simple and easy to remember, which creates an attractive "image" of the product.

Step 6. Scheduling the advertising.

Step 7. Evaluating the effectiveness of advertising.

The importance of a system approach in promotion activities is often underestimated, and the marketing department has to be part of the management of any agricultural company. Consider the project of marketing department establishment. The purpose of the project is to increase the company's profit by streamlining the structure of sales channels, as well as streamlining the structure of marketable products.

It is planned to complete this project in 1,5 months: 18.02.2021 - 03.04.2021. The project budget is 1,5% of sales in 2020 (20,5 million UAH). The project cost-sheet is available in table 3.

**Table 3**

*Cost-sheet for the marketing department*

Expenses, UAH per year	UAH
Office reconstruction	8700
Additional furniture	10800
Devices	35000
Capital expenditures	54500
Salary	120000
Salary taxation	26400
Stationery	2000
Electricity and other services	2000
Telephone conversations	3000
Travel expenses (including travel and accommodation expenses)	33264
Advertising	45900
Total operating costs	232564
Total costs	287064

The main project participants are:

- Customer - Olympus Agrotrade LLC;
- Investor - Olympus Agrotrade LLC;
- Project manager – Director of the company.
- The project life cycle includes:

Pre-investment stage (18.02.21 - 19.02.21); Investment stage (20.02.21–28.02.21); Operational stage (01.03.21 - 03.04.21).

Basic indicators for the project presented in Table 4. We assumed that marketing department will increase the total sales up to 5% per year.

**Table 4***Calculation of the project efficiency*

<b>Indicator</b>	<b>2021</b>
Investments, thousand UAH	54,5
Additional sales, generated by the marketing department, thousand UAH	1025
Project operating costs, thousand UAH	232,6
Depreciation, thousand UAH	10,9
The highest deposit rate for companies (for UAH), %	11
Cash flows, thousand UAH	803,3
Discount rate	0.9009
Discounted cash flows, thousand UAH	723,7
Discounted benefits, thousand UAH	933,2
Discounted costs, thousand UAH	209,5
NPV, thousand UAH	748,8
Return on investment ratio	13,7
Benefits-cost ratio (BCR)	4,45
Payback period of the project, years	Less than 1 year

1) Present Value of the project (PV) - the amount of discounted cash flows: 723,7 thousand UAH;

2) Net Present Value of the project (NPV) - the difference between the present value and the investments: 748,8 thousand UAH;

3) return on investment (ROI) - the ratio of NPV to the investment: 13.7 – very high;

4) benefit-cost ratio - the ratio of the amount of discounted benefits to the amount of discounted costs: 4,45;

5) payback period - less then 1 month.

Thus, the marketing department can be estimated as a high profitable reinvestment which can earn 3.35 UAH on each 1 UAH of current cost if the department will able to increase the sales by 5%.

Time planning instruments can be implemented for our project development (Table 5). The task of calendar planning has an important place in project planning. Calendar planning is the process of compiling and adjusting the schedule, where the work carried out by different organizations are interconnected by time parameters and with the prospect of providing them with other types of all types of resources.

Let's build a network graph, which is built from left to right, graphically, with a logical connection between them.

**Table 5***Output data*

Work code	Work	Previous work	Duration, days
A	Recruiting	-	10
B	Office reconstruction	-	7
C	Office preparation	B	1
D	Instruction for the team	A;B;C	1
E	Operation-process mapping and training	D	1
F	Data base	E	2
G	First working day	F	1

Draw a graph of the precedence, where the works are presented in the form of rectangles, and the arrows show the logical connections (Fig. 1 ).

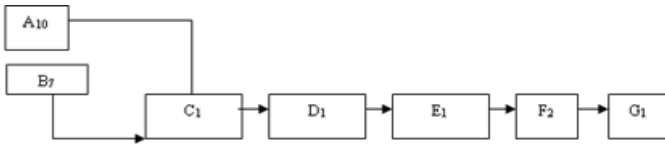


Fig. 1 . Precedence schedule

The calendar planning measurements in the simplest case indicate the start and end dates of each type of work, their duration and the required stocks. The critical path for this project is determined, it is the path in the network model, the duration of which is equal to the critical one and lasts 15 days (Table 6).

**Table 6***PERT analysis for early start and finish*

Work code	Early start	Early finish
A	Beginning of the 1st day	End of the 10th days
B	Beginning of the 1st day	End of the 7th days
C	Beginning of the 8th day	End of the 8th days
D	Beginning of the 11th day	End of the 11th day
E	Beginning of the 12th day	End of the 12th days
F	Beginning of the 13th day	End of 14th days
G	Beginning of the 15th day	End of 15th days

The early start date represents the earliest date when work began. If the duration of work is added, then we get the date of its earliest completion.

Due to the fact that the work performed depends on its completion and some of its elements, then there is the last date when the work must be completed without interruption of the project.

The specified date is calculated by the sum of the dates of late start and duration of work (Table 7).

**Table 7**

*PERT analysis for late start and finish*

<b>Work code</b>	<b>Late start</b>	<b>Late finish</b>
A	Beginning of 1st day	End of 10th days
B	Beginning of 3rd days	End of 9th days
C	Beginning of the 10th day	End of 10th days
D	Beginning of the 11th day	End of the 11th day
E	Beginning of the 12th day	End of 12th days
F	Beginning of the 13th day	End of 14th days
G	Beginning of the 15th day	End of 15th days

If the terms of the different beginning diverge, then the break when the work is to be started is called the possibility of time and is marked as the difference between the number of late start and the number of early starts. If the duration of work does not differ, then the difference between early and late beginnings and its early and late end coincides. Work with zero time is called critical, its duration is determined by the duration of the project as a whole. Critical duration is the shortest duration during which the whole complex of project works must be performed (Table 8).

Based on the network schedule, we build a calendar plan to which can be linked with resources and the matrix of responsibilities.

Documentation on the calendar plan package includes:

- comprehensive calendar plan;
- detailed calendar plans for performers;
- detailed calendar plans for work packages;
- information on resource needs;
- delivery schedules;
- plan for concluding contracts;
- organizational and technological measures to implement the plan;
- plan of control over the performance of works.

In order to stimulate the sale of agricultural products through more profitable channels, we offer advertising activities at the enterprise. Creating a marketing service at the company has long been the number one task. But Olymp Agrotrade LLC had doubts about the expediency of such organizational measures. We analyzed the effectiveness of the project

to create a marketing service and proved that such investments will be effective, as the payback period is less than a years, benefits-cost ratio – 4.45, and return on investment – 13.7.

**Table 8**

*Determination of reserves*

<b>Work code</b>	<b>Reserve, days</b>
A	0
B	2
C	2
D	0
E	0
F	0
G	0

We offer to use network modeling when creating a marketing service. This will allow more efficient management of material, financial and labor resources. Thus, the implementation of the above proposals will significantly increase the efficiency of production and sale of agricultural products.

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**TECHNOLOGY MANAGEMENT IN THE CONTEXT OF  
IMPROVING GOODS QUALITY AND SAFETY**

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Currently, when Ukraine is integrating into the markets of the European Union, the enterprises face a high level of competitiveness and specific barriers in this way. These processes motivate the Ukrainian enterprises to improve

the food production standards to raise their competitiveness compared to the foreign counterparts [5]. Nonetheless, Ukraine underestimates the role of technology, technology markets, and technology competition. Most of the technologies, regarded as high-class, sophisticated, new, unique, and progressive in our country, are not sold in either internal or foreign markets [4].

The introduction of technology management at agri-food enterprises may become one of the options for upgrading this situation. In its turn, it will create new advanced opportunities to improve the quality and competitiveness of products not only in the domestic market but also abroad.

Lihonenko L. states that the purpose of technology management is to ensure the technological development of the business organization (enterprise). In other words, it is the purposeful and continuous (constantly-organized) process of irrevocable changes in technologies of the enterprise economic activity. These changes determine the proper development of fixed assets that provoke them, the personnel who implement and use them, and intangible assets that promote their creation and use. Altogether, they allow ensuring the technological competitiveness of individual entities and the development of the technology market as a whole (due to modeling both demand and supply of technological ideas and their developments) [8].

Actually, the quality of products depends greatly on the level of their production, and thus, one of the possible ways to ensure the certified quality of the goods is to improve the technological support for their production. Food-producing companies, in turn, must be able to obtain quality technologies and machinery that have passed the necessary tests and trials, qualified personnel, including organizational and methodological assistance in creating quality management systems [7].

Product quality, being the most important criteria for the operation of the enterprise in conditions of market over-saturation and non-price competition, stimulates improvement of the technical level of production, which influences the scientific and technological progress rate and production efficiency, in general. All these factors cause a significant impact on the intensification of the economy and increase the competitiveness of domestic goods and living standards of the population [1].

According to Ilchenko N., food safety constantly concerns consumers. Many food safety standards have been published in recent years to improve food safety. However, there still exists some divergence in approaches to the solution of the issues highlighted by manufacturers, suppliers, sellers, and consumers. National legislation, standards, regulations, and requirements for food producers must comply with international documents so that Ukrainian producers could have opportunities to enter new and promising markets. The creation of appropriate economic and legal conditions for the

production of high-quality and safe food would allow providing people with such foodstuff and could strengthen Ukraine's presence in the world market of agricultural products [5].

In the conditions of constant transformational changes, the production of high-quality and safe products at agro-food enterprises requires immediate effective solutions, which consequently will provide a basis for improving the technology of production, processing, storage, transportation, and sale of products.

Zhavoronkov G. states that improving the quality of products and services certainly positively affects any enterprise's activities. Current economic conditions force every company to implement and support a modernized management mechanism of the appropriate (exemplary) quality. The defining elements of this particular management that most significantly impact the production and supply of competitive products on the market are: standardization and certification of products; standardization and certification of the internal systems of quality; state control over the observance of standards, norms, and regulations, including the responsibility for their violation; in-house technical quality control [2].

One of the most important issues in the field of food quality and safety is storage, processing, transportation, and sale of agricultural products. Currently, in Ukraine, the quality indicators low rates here are due to the products' non-compliance with technological norms, lack of proper refrigerant tanks, low sanitation, poor quality packaging, presence of food additives, processing raw materials by adding various food colorings, acids, alkalis, enzymes, etc. [7].

To avoid, or at least, minimize such breaches, it is necessary that the management system of the agri-food enterprise determined comprehensively the priorities for the development of their technical and technological capabilities. Key components of the technical and technological development of the agri-business sphere are shown in Fig. 1.

It is advisable to start the process of improving the technological management of agricultural production with the in-depth study of the technology structural elements and do it in terms of the basic production resources consumption. The dynamics and correlation of the main inputs in production in the technological processes affect the volume of production costs and the product's competitiveness rate. Under the current conditions of socio-economic development of the state, lowering energy-use in crop and livestock products production is the most important goal for developing an effective management system of production processes to ensure energy independence of the enterprise [3].

The agri-food enterprise managers must take the following measures to ensure technical and technological development in the context of technology

management [6]:

- free the enterprise from the excessive equipment, machines, and other fixed assets or rent them;
- provide timely and high-quality planned preventive and capital repairs;
- care about timely renewal of a particularly active part of the fixed assets to prevent their excessive moral and physical wear and tear;
- implement new equipment and advanced technologies, namely low-waste, non-waste, energy, and fuel-saving ones;
- improve the production and labor organization to reduce the loss of working time and downtime of machinery and equipment;
- improve the quality level of preparing raw materials for the production process;
- increase the level of concentration, specialization, and integration of production;
- raise the qualification level of service personnel;
- purchase high-quality fixed assets.

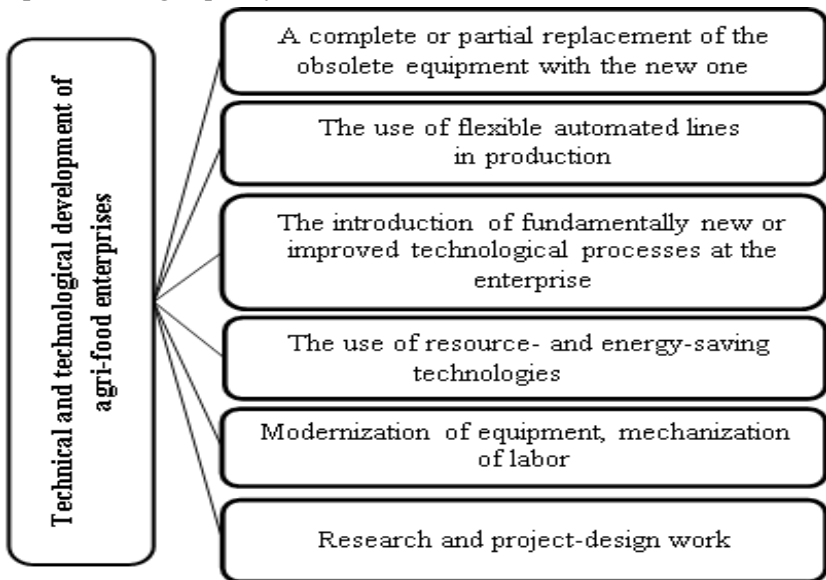


Fig.1. Basic components of technical and technological development of agri-food enterprises

*Source: developed by the authors on the basis of [1]*

In the context of ensuring high-quality and competitive product production, the implementation of effective technology management requires taking into account the innovative potential of the agri-food enterprise.

Loshchyna L. and Milashenko V. argue that we should include the following indicators of different components of management system to determine the innovative potential of the enterprise [10]:

1) the financial component (the rate of new technology acquisition costs in the total internal cost of production; knowledge intensity of the manufactured products; the rate of intellectual property; the rate of intangible assets costs in total research and development costs; the rate of the costs of the personnel's training in the total amount of expenditure on research and development);

2) HR (personnel) component (the proportion of workers employed in research and development to the total number of employees, the availability of highly- qualified personnel, salaries of scientific and technical workers);

3) the logistical component (progressive equipment, upgrading equipment index, the coefficient of introduction of new technology);

4) information component (costs of information activities, the ratio of personnel engaged in information activities);

5) market component (indicators of new product development; the part of innovative products in total industrial production; profitability of innovative products; the competitiveness indicator of the new products).

Further research is needed to characterize the forms of technological development of the enterprise of the agro-food sphere. Thus, L. Lihonenko identifies the following forms of enterprise technological development:

1) research-based – development of innovative technological solutions via financing internal and/or external research;

2) legal – the acquisition of property rights to the created objects of intellectual property (patents, licenses for the use of inventions, industrial designs, utility models); concluding sales/purchase agreements of technologies and know-how, etc .;

3) import-based – acquisition from other subjects of innovative activity the rights to use objects of intellectual property in their economic activity;

4) material – modernization and renewal of fixed assets through the purchase or leasing of equipment, machinery, accessories, etc .;

5) HR (personnel) – specialized training of the enterprise employees and/or involvement of external specialists if necessary for the technology effective implementation;

6) product-based – the development of new products (goods and services) based on new technologies;

7) export-based – transfer to foreign commercial or non-commercial companies the right to use new technologies developed at the enterprise [9].

Thus, to improve the quality and safety of goods, the managers of agri-food enterprises need to make balanced management decisions, taking into account the peculiarities of technology management and the abovementioned

scientifically-grounded conclusions. Qualitatively formed and implemented technological management of the enterprise will strengthen and form new extended opportunities in terms of quality, safety, the competitiveness of goods and ensure food security of the country.

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## **EFFICIENCY EVALUATION OF ELECTRICITY PRODUCERS USING DEA METHOD**

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Economic changes affect the state and further development of enterprises of energy sphere. Influenced by external and internal factors, these enterprises have to adapt to the new situation, create new relations with partners, forming the energy supply chains (ESC).

In energy supply chain management the evaluation of the energy producers' efficiency plays crucial role. In terms of energy markets if we consider the functions of participants of ESC, it is obvious that the suppliers in ESC do not produce energy but only sell it to the consumers. This means that they are just intermediaries between producers and consumers. That is why it is essential to estimate not the efficiency of suppliers but efficiency of producers of energy services.

However only a few researchers pay attention to this problem. In addition, evaluating the efficiency they often ignore the influence of these enterprises on the environment, which is extremely important in terms of sustainable development and energy security.

Today there is no common methodology to evaluate the efficiency of energy producers, which would take into account their environmental influence. That is why given research aimed to form the methodological toolkit, which would allow decision makers to identify non-efficient participants of ESC and would create a basis to further benchmarking, development of ways to improve efficiency and, if it would be necessary, to change the structure of ESC.

The evaluation of enterprises should be conducted based on objective and sufficient for analysis data. These data can be obtained from financial records, which reflect the results of enterprises' work during some period of time. Moreover, data on emission of harmful substances can be calculated based on the unit emissions of consumed resources.

For the further analysis, we will consider energy systems of energy

producers as systems, which transform some “inputs” into “outputs”. In this case input is an indicator related to certain cost, and output is an indicator related to the results of enterprise activity.

It is worth mentioning that the efficiency of enterprises in energy sphere is determined by the ratio of outputs to inputs. This means that it is necessary to construct the model with multiple inputs and multiple outputs.

It is to be noted that before the application of methods of efficiency evaluation, it is necessary to normalize the data (on the stage of preliminary data preparation). In order to do this in this research we use minimax normalization, which leads to the limitation of factors to the range of [0,1].

Minimax normalization is one of the most wide spreaded methods of data normalization [1, p. 137]:

$$XN(i, j) = \frac{X(i, j) - X_{min}(i)}{X_{max}(i) - X_{min}(i)}, \quad (1)$$

where  $XN(i, j)$  – normalized value of j element in i line;

$X(i, j)$  – reference value of j element in i line;

$X_{min}(i)$  – minimum value in i line;

$X_{max}(i)$  – maximum value in i line.

The formula (1) can be used for the normalization of the so-called factors-stimulators that are the factors, which increase leads to the increase in the total evaluation of the unit’s work. In the same time, studied units (enterprises) can be characterized by factors-destimulators, which have opposite attributes that is the reduction of them leads to the increase in the evaluation of unit’s work. For normalization of such factors the following formula should be used:

$$XN(i, j) = \frac{X_{max}(i) - X(i, j)}{X_{max}(i) - X_{min}(i)}. \quad (2)$$

The basis of separation of inputs and outputs into stimulators and destimulators might be the direction of their influence on the results of the studied process [2].

Data normalization on the preparation stage of analysis will allow models, which are used, to work with data more correctly not changing the results.

After data normalization it is advisable to proceed directly the efficiency evaluation of the energy producers’ work.

We propose to use DEA methodology (Data Envelopment Analysis). in order to evaluate in a comprehensive manner the efficiency of work of

enterprises in energy sector, which are the homogenous economic units (decision making units – DMU). Given methodology will allow to obtain the estimation of their comparable efficiency calculated on the basis of set of inputs and outputs.

The application of this method provides for the existence of two groups of factors that correspond to a DMU. In our case such factors are the inputs and outputs of enterprise energy systems. It cannot be denied that these groups of factors are related to each other as the outputs are the direct consequence of the inputs transformation in the system.

Thus, two groups of interrelated factors exist  $Y_1, Y_2, \dots, Y_s$  and  $X_1, X_2, \dots, X_m$ .

DEA is the method of non-parametrical linear programming. It is used for the estimation of DMUs, which have multiple inputs and outputs. The method identifies the most efficient units and determine the efficiency of other units based on the estimation of their deviation from the efficient. Procedures used in this method allows after some amount of iterations to obtain so-called indicator “efficiency score”, as well as to rank and to compare every DMU, which is characterized by some set of inputs and outputs.

W. W. Cooper, L. M. Seiford, K. Tone say that the selection of inputs and outputs in models should be stated on the following conditions:

1. Numerical data are available for each input and output, with the data assumed to be positive for all DMUs.
2. The items (inputs, outputs and choice of DMUs) should reflect an analyst's or a manager's interest in the components that will enter into the relative efficiency evaluations of the DMUs.
3. In principle, smaller input amounts are preferable and larger output amounts are preferable so the efficiency scores should reflect these principles.
4. The measurement units of the different inputs and outputs need not be congruent. Some may involve number of persons, or areas of floor space, money expended, etc. [3, p. 22].

In economic practice, the first condition not always can be fulfilled. For instance, the value of profit as a result of enterprise activity can be negative (loss). That is the reason why the preliminary data preparation should include their normalization.

The selection of inputs and outputs for DMUs (enterprises) in this research should be based on the importance of resources (inputs) and enterprises objectives to increase the amount of energy produced (electricity and in some cases heating) for consumers. Since the main goal of DEA is the evaluation of enterprises efficiency and since this efficiency is determined based on the value of inputs and outputs, the selection of relevant inputs and outputs is crucial for the analysis. Let us characterize briefly the set of inputs

and outputs, which were defined in given research.

The main goal of ESC is to produce energy services from defined set of resources and to provide them to final consumer.

In the first stage of efficiency evaluation of energy producers using the DEA methodology the following inputs were defined:

- Material costs;
- Average annual value of fixed assets;
- Labor costs.

These inputs reflect the cost of resources, which are necessary for the functioning of studied enterprises and for production of the main goods and services.

The following outputs were defined:

- Total emission of CO<sub>2</sub>;
- Amount of electricity sold;
- Amount of heating energy sold.

These outputs reflect the main results of enterprises work. Moreover, some of them are stimulators (volumes of sold energy), and others – destimulators (emission). The last are undesirable results of enterprises activity.

The model constructed with these factors will allow to estimate the efficiency of enterprises regarding their productivity in accordance with their influence on the environment.

While we have data on resources used and the results of enterprises work in terms of additional factors, the set of inputs and outputs can be complemented or changed.

In our opinion, the proposed methodological approach will allow to estimate the efficiency of enterprises, which are participants of ESC, and will give an opportunity to use the results of analysis in decision-making process.

Thus, after the conduction of preliminary data preparation it is worth to proceed the efficiency of economic entities. In order to do this we propose to use DEA methodology.

Therefore, in this research we propose methodological approach, the use of which aimed at:

1) Calculation of efficiency indicator of enterprises, which are participants of ESC, using DEA method that can be used further for benchmarking while designing more efficient ESC based on the indicator of enterprises productivity;

2) As DEA provide an opportunity to identify the enterprise relative efficiency, results of calculations for the most efficient enterprises can be considered as objectives for non-efficient enterprises;

3) Connection between the results obtained using different inputs and outputs will give an opportunity to interpret more properly the obtained

results;

4) The results of analysis for enterprises, which use different technologies of energy production will make possible to claim the priority of ESC formation from those enterprises, which are the most efficient.

Let us describe briefly the main characteristics of DEA for the efficiency evaluation of energy producers in this research.

At the enterprises, which produce electricity, the decision makers can not influence the amounts of sold electricity and heating energy, as they are mostly defined by the demand. In the same time combining the resources (inputs) rationally they can reduce their costs during the production process. For this reason in this case, in our opinion, the input-oriented DEA approach should be used. Moreover, it is necessary to chose the model with constant returns-to-scale. Thus, for every analysed enterprise in chosen DEA model the weights of factors will be set to maximize the efficiency in terms of established restrictions.

Thus, the selected model type in this research is – CCR, which was offered by запропонована A. Charnes, W. W. Cooper, E. Rhodes [4]. This is the simplest type of DEA model, which can be easy calculated and interpreted. Let us formulate the linear programming problem for this model.

There are data for M inputs and K outputs for every of N studied enterprises. For every enterprise n they are represented with column vectors  $x_j$  and  $y_i$  respectively. Then the matrix X with dimensionality  $m \times N$  is the matrix of input parameters for N enterprises, and matrix Y with dimensionality  $k \times N$  is the matrix of output parameters for N enterprises. Then the linear programming problem can be formulated as follows:

$$\begin{aligned} \min & \theta, \lambda(\theta), \\ & -y_i + Y\lambda \geq 0, \\ & \theta x_i - X\lambda \geq 0, \\ & \lambda \geq 0, \end{aligned} \tag{3}$$

where  $\theta$  – scalar,  $\lambda$  – constant vector with dimensionality  $N \times 1$ . The value  $\theta$ , obtained while solving this problem is a measure of efficiency enterprise n. The efficiency in this case does not exceed 1. The same problem is solved for every enterprises, that is N times. The enterprises, which efficiency score is 1, are situated on the efficiency frontier, and those, which efficiency score is below 1, are not efficient [5].

Considering undesirable factors in the efficiency evaluation using DEA methodology, researcher propose several approaches of their introduction into the model.

L. M. Seiford and J. Zhu describe these approaches as following:

1) just simply to ignore the undesirable outputs;

- 2) to treat the undesirable outputs in the non-linear DEA model;
- 3) to treat the undesirable ones as outputs and to adjust the distance measurement in order to restrict the expansion of the undesirable outputs;
- 4) to treat the undesirable outputs as inputs (however, this does not reflect the true production process);
- 5) to apply a monotone decreasing transformation to the undesirable outputs and then to use the adapted variables as outputs [6, p. 19].

The third and fifth approaches require particular attention. The supporters of the third one, R. Färe and S. Grosskopf propose to introduce the additional vector of undesirable factors into the model through the use of the function of direct distance, which can be estimated by application of linear programming technics [7]. However, this approach, in our opinion, is rather time consuming and makes the interpretation of the results more complex. At the same time, L. M. Seiford and J. Zhu use fifth approach, as the linear transformation does not distort the interrelations between variables and is the right choice for DEA model application [6, p. 19]. In this research, we also use fifth approach, the procedure of which is conducted along with the data normalization. The undesirable results of enterprise activity are factors-destimulators and the formula (2) is used for their normalization. This approach is exactly the one that reflects the interrelations between inputs and outputs, not changing the target function of maximization of their ratio.

The selection of inputs and outputs in DEA model is the first step of the research. Moreover, the selection of the factors in the model depends on the data availability and the number of analyzed DMUs. The number of DMUs should be at least twice as many as the sum of inputs and outputs numbers.

After model selection and determination of inputs and outputs, the calculation of the efficiency scores using DEA method is conducted.

The efficiency scores are within the interval from 0 (the lowest efficiency score) to 1 (the highest efficiency score). The approbation of proposed methodological approach to the efficiency evaluation of enterprises in ESCs is conducted using the example of electricity producers.

In given research 21 enterprises, electricity producers, in 2017 were analyzed. The task was to estimate the efficiency of every enterprise. For practical implementation of the proposed methodological approach the software STATISTICA and MaxDEA was used.

The results of input-oriented DEA model are presented in Table 1. This model include 6 ( $X_1$ ,  $X_2$ ,  $X_3$ ,  $Y_1$ ,  $Y_2$ ,  $Y_3$ ), that means that the enterprises efficiency as their productivity was estimated taking into account the factor of influence of the environment.

It should be mentioned that the studied enterprises use different technologies for energy production. The enterprises with numbers 1, 2, 3, 4, 5, 7, 9, 12, 16, 18, 19, 20, 21 are thermal power plants, which use gas,

coal and fuel oil; enterprise 6 is the object of nuclear energy; 8, 14, 17 are hydroelectric power plants; 10, 13, 15 – solar power plants; 11 – wind power plant. It is also worth mentioning that the thermal power plants produce heating energy along with electricity.

Evaluating the efficiency of enterprises – electricity producers, we come to conclusion that the group of the most efficient enterprises (even taking into account ecological influence) includes the enterprises regardless the technologies they use. For example: thermal power plants (3, 21) and solar power plants (15). In our opinion, this means that designing ESCs final consumers can involve enterprises, which are produce energy using traditional energy resources, as well as renewables.

**Table 1**

*Efficiency evaluation of electricity producers (results of DEA application) in 2017*

№	Enterprise	2017	
		Efficiency	Rank
1	DTEK DNIPROENERHO	0,0520	15
2	DTEK ZAKHIDENERHO	0,0036	19
3	ODESKA TETS	1	1
4	KHERSONSKA TEPLOELEKTROTSENTRAL	0,5277	11
5	KALUSKA TETS-NOVA	0,5037	13
6	NATSIONALNA ATOMNA ENERHOENERUIUCHA KOMPANIIA "ENERHOATOM"	0,0021	20
7	SIEVIERODONETSKA TEPLOELEKTROTSENTRAL	0,5791	10
8	ALTEN	1	1
9	BILOTSEKIVSKA TEPLOELEKTROTSENTRAL	0,5155	12
10	BOLHRAD SOLAR	0,6440	9
11	VITRIANYI PARK OCHAKIVSKYI	0,3872	14
12	MYKOLAIVSKA TEPLOELEKTROTSENTRAL	1	1
13	NEPTUN SOLAR	0,7129	8
14	NYZHODNISTROVSKA HES	0,0198	17
15	PRYOZERNE 2	1	1
16	TEPLOHENERATSIIA	0,7390	6
17	UKRHIDROENERHO	0,0008	21
18	KHARKIVSKA TETS-5	0,7174	7
19	DONBASENERHO	0,0207	18
20	TSENTRENERHO	0,0322	16
21	DNIPROVSKA TEPLOELEKTROTSENTRAL	1	1

The efficiency evaluation of energy producers on the separate aspects of the efficiency as well as on the whole is the basis for the further benchmarking, which is based on the comparison obtained results of analysis with the best economic practice.

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## SUPPLY AND SALES MANAGEMENT IN THE CONTEXT OF DIGITAL SECURITY

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In today's business environment, given the state of the macro environment, most businesses, regardless of industry, are forced to use a variety of tools that allow them to maintain a market position. This necessitates the focus on meeting customer requirements, ensuring the quality of trade services at all levels of the relationship with the consumer. The main trend of the modern economic system, which determines the transformation of relationships in the

provision of services by trade organizations, is the possibility of interaction of all participants in economic relations in the digital environment. The use of digital and IT technologies, their active introduction into the practice of economic entities of trade has led to the emergence of a specific term “digitalization” [14].

We can agree with the conclusions of analysts and experts of the Eurasian Economic Commission that the business structures of countries that are not involved in the digitalization process were beginning to lose competitiveness. According to the EAEU Report on the Development of Digital (Internet) Trade (2019), “... in the conditions of intensified competition and growth of cross-border trade, countries that have not been able to create a modern model of supply and service provision do not receive competitive advantages. A product delivery cost is higher, and the quality of services is lower than that of competitors who have mastered digital channels of promotion, sales, marketing, etc.... » [3; 13].

In recent years, there has been a trend of outflow of consumers from traditional shopping centers to online, as well as specialized online and offline stores that are integrated with mobile applications. For example, most large retailers operating in the traditional format, including (Carrefour, Casino, Wal-Mart, etc.) in 2020 began to reduce retail space. In the United States, which is one of the leaders in digital commerce, Amazon Alexa in 2019 made about 3 % of purchases (according to forecasts, by 2025, online sales of products in the country will reach 20 %) [2; 13].

The development of online trade has become especially relevant against the background of the spread of coronavirus. In China, for example, the Ministry of Commerce and the country's National Health Commission have published a “Guide to retailers and catering companies to prevent new coronavirus spread”. As a result, all large and medium-sized online firms began to implement standards for "contactless delivery" of goods. This has led to a significant increase in online sales. For example, the popular Miss Fresh product delivery service has quadrupled the number of online product orders compared to the same period last year [12]; 40 million food products were sold. There was also an increase in online sales of the leader of Chinese e-commerce JD service Dada, whose product sales increased 3.1 times in 10 days. Supermarkets and hypermarkets have found their niche in the new conditions. The country's largest retail operator Sun Art Retail Group, which includes 486 hypermarkets across the country, closed in the midst of the epidemic 80 % of its outlets, but company's profits didn't decline due to its own online order delivery service, which worked through a mobile application and social network “WeChat”. Certainly, there were some difficulties faced by online commerce during this period –

the lack of couriers, as some of them remained in quarantine, while

others demanded higher payment for increased risks [2; 12; 13].

Considering the world market of e-Commerce, we should distinguish two areas of its development: websites and online stores. Analyzing the dynamics, it can be noted that in 2020 the global e-commerce market showed an increase of 19.36 % (\$ 4.13 trillion) compared to the previous year (Fig. 1) [9].

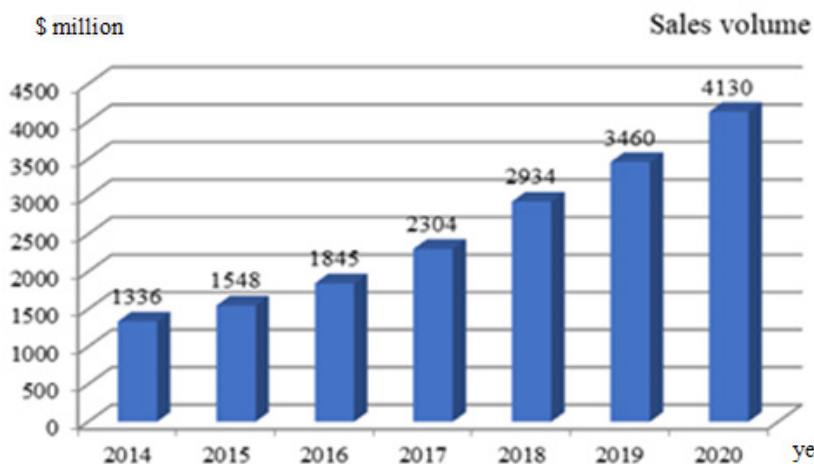


Fig. 1. Dynamics of the global e-commerce market, 2014-2020, \$ million [2; 9; 13]

If the world's e-commerce turnover for this year is estimated at close to 4 \$ trillion, in Ukraine it is projected at

4 \$ billion. The average growth rate of this market in the world is 12-14 %, in Ukraine – about 17 % in 2020. The average customer who uses online commerce services spent \$ 500 a year, according to experts. EVO Group of Companies has announced the results of 2020 in the e-commerce market in Ukraine. Thus, the total amount of physical goods and services purchased by Ukrainians on the Internet in 2020 reached 107 UAH billion. This is 41 % more than last year. The number of online payments has also increased – by at least 50 %. Now almost 9 % of all purchases in Ukraine are made online – on marketplaces, in online stores and social networks. For comparison, in 2019 the share of e-commerce in retail in Ukraine was estimated at 7 %, and the market grew by 17 % per year. During the year, the number of orders on EVO marketplaces – Prom.ua, Bigl.ua, Crafta.ua, Shafa.ua, IZI.ua and Prom.ua websites increased by 42 %. The average check fell by 10 %. This may be due to the fact that people began to buy online much more often and cheaper goods – clothing, consumer goods, food, masks [7; 8].

Creation of high-tech production and modernization of industry with

the use of new information and communication and digital technologies, the scale and pace of digital transformations were becoming a priority of foreign economic development of most countries. At the same time, a comprehensive and systematic approach to the large-scale implementation of digital technologies is needed. Only in this case they can significantly accelerate the development of an open information society as a major factor in productivity growth, economic growth and quality of life. Thus, the digital development of the economy in general, and businesses in particular, involves solving a set of tasks designed to have a positive impact on the economy, business, society and life of the country (Fig. 2) [5; 13].

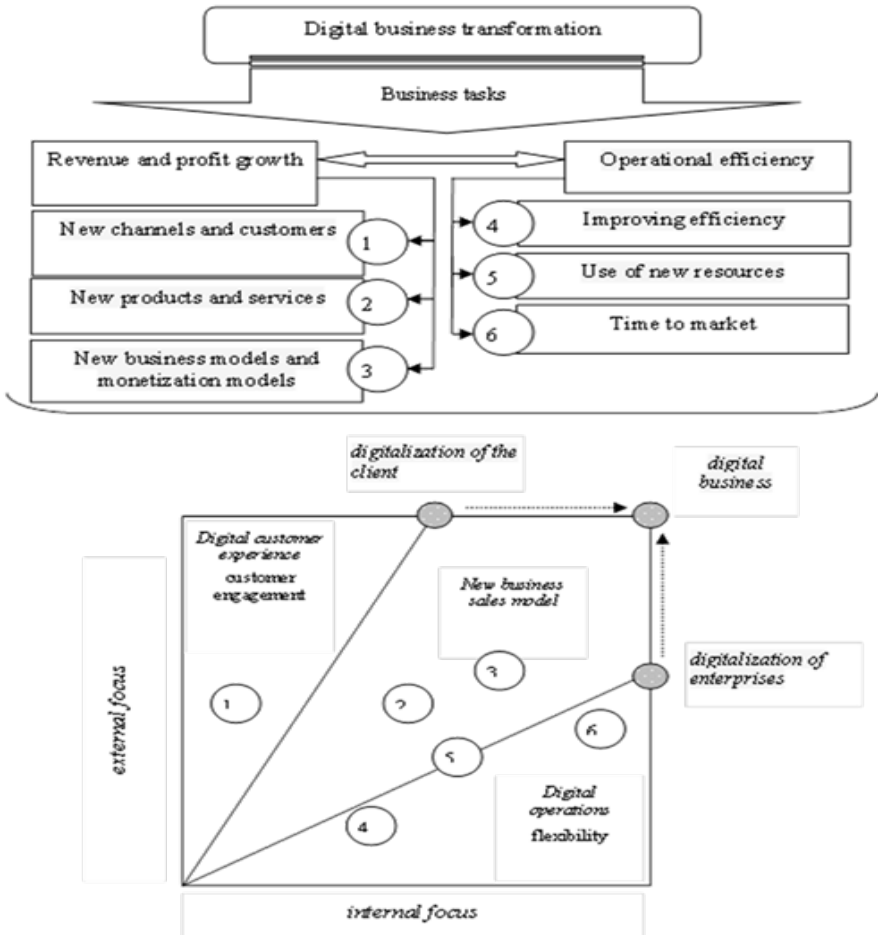


Fig. 2. Model of digital business transformation of the enterprise in the conditions of digitalization [developed by the authors]

The traditional "pre-digital" global market was controlled mainly by multinational corporations. The changes brought about by the digital revolution made it possible to create multinational companies. The key advantages of such a business model are:

the most efficient use of labor and intellectual resources that have specific skills and competencies. Individual specialists can work in one team, in one company, regardless of the physical location of individual employees;

access to global markets: digital products, software solutions, media content and other components of the digital market are not limited by logistics capabilities, and therefore can be delivered to any part of the globe without any problems;

global capital market: the globalization of the world economy has made it possible to access global financing (business angels, venture funds, accelerators) for companies from of any country [6].

Business in the digital economy is based on the opportunities created by global providers of digital solutions in the field of software and hardware, telecommunications. Mixed technologies, in which digital solutions complement and expand the capabilities of traditional technologies – the widest area of activity of companies, as it allows using the wide potential of the market: media, advertising companies, e-commerce and etc.

Thus, ensuring the functioning and development of business entities in the new business environment involves constant adaptation to the digital environment, which actualizes the definition of key elements of their production and marketing activities (Fig. 3).



Fig. 3. The main elements of production, marketing, sales activities of business entities in the context of digitalization [developed by the authors]

Thus, the key advantage of digitalization business is, first of all, qualitative acceleration of information exchange: data on customer needs, prices, and dynamics of production processes come almost instantly and can be used to

make relevant, and therefore, very effective management decisions [5]. It is important to keep in mind that the development of cloud technologies, the introduction of the concept of “anything as a service” leads to a significant increase in quality requirements for supply chain management.

The boundary between material and digital information flows was gradually disappearing: the delivery of goods can be in the format of digital files for machining centers or 3-D printers [6]. It is important that this gives the client the opportunity to offer a new quality of services, to respond as quickly as possible to changes in market demand, to control the quality of subcontractors. However, the requirements for the quality of supply or service management are also significantly increasing. Coordination requires many parallel processes that were previously performed slowly and sequentially. Accordingly, there are seven main “intersections” of digital and real flows in the management of supply and sales to the business entity:

- integration is necessary to unite in a single supply chain both inventory and information flows. This provides an opportunity to maximize the potential of digitalization to reduce risks in the supply, sale of products, accelerate operating activities, and reduce costs;
- artificial intelligence opens wide opportunities for optimizing sales and supply of products, especially in terms of routine operations, which allows you to efficiently process large data sets of operations within the company, typical of industry 5.0 and the industrial Internet;
- optimization, i.e. the transition to high-speed exchange of digital information forms new areas for optimizing the enterprise;
- the company can effectively manage a significant number of suppliers and contractors, controlling the quality of their work (for example, receiving data directly from their production, warehousing, sales equipment included in the industrial Internet of Things);
- formation of a trusted digital environment, based on distributed registry technologies (blockchain) and smart contracts. The use of such an environment will significantly accelerate financial flows and the pace of decision-making;
- autonomy, i.e. part of the standard business processes can be performed autonomously, without requiring human intervention;
- increasing synchronization, which opens a new stage in the development of the concept of “just-in-time” for the whole complex of incoming and outgoing inventory and information flows of the enterprise [4; 8; 9].

It is important that the integration of digital and real flows in the management of production and marketing activities is at an early stage of development now [1; 11], which opens wide opportunities for innovative companies, developers of new software solutions, subcontractors working for big business.

It showed that digital technologies can create unprecedented value as companies transform their businesses. As a result of the integration of the Internet into the company's business model, they achieve improved operational efficiency, significant cost savings and increased customer engagement, strengthen competitive advantages and more. The introduction of digitalization of production, sales, marketing, delivery eliminates many problems such as the use of working time, loading equipment, movement of raw materials, labor costs, but puts forward a number of new requirements for the operation and management of modern businesses.

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## **MANAGEMENT OF COMPETITIVENESS IN CONDITIONS OF SUSTAINABLE DEVELOPMENT AND ENSURING ECONOMIC SECURITY**

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Theoretical and methodological foundations of competitiveness management in terms of sustainable development are based on the fundamental task of managing the economic system to ensure economic security. Scientific and practical experience in managing the competitive development of economic systems today is based on systemic, process and situational approaches [1-7]. Each of them represents a different system of views on the nature of the essence of management and uses the appropriate methodological foundations. Since management is a continuous process that requires decision-making at every stage, the use of modern economic and mathematical methods and models allows to reduce the level of uncertainty and risk, which determines the relevance of this area.

In view of this, the task of the research is to analyze the tools of competitiveness management in order to make effective management decisions in ensuring sustainable development and economic security. Let's consider their composition in more detail.

The spread of the use of a systematic approach in the management of economic objects, the founders of which were C. Barnard and P. Drucker,

occurred during the 50-60s of the 20th century [8]. Based on their work, the American researcher D. Forrester developed a model of the organizational system of an industrial enterprise based on the interaction of flows of raw materials, orders, cash, equipment, labor and information. Analysis of this model allowed the author to conclude that the complexity of managing a complex system in the long run is that in most cases, preference is given to short-term goals, which inevitably leads to deterioration of the system functioning in the future.

The modern view of management on the systems approach is based on a cybernetic definition of the concept of system. In the further research we will be basing on the following generalized interpretation as a purposeful complex of interconnected elements, which creates a single unit of different quality and is characterized by the properties of integrity, hierarchy, emergence and functionality:

- integrity is in that the change in the state or mode of operation of any component has an impact on all other components and the system in whole and vice versa;
- hierarchy implies that the system itself is considered as an element of a higher level system, and each of its elements can act as a lower level system;
- emergence means that the sum of the properties of the elements may not be equal to the properties of the system itself;
- the functionality of the system means that each of its elements has its own personal functional purpose, however, despite this, they all interact with each other.

Then, the place of statistical and economical methods and models in the system approach is determined by its essence:

first, it is the replacement of the object of the research, presented in the form of a system, with the appropriate model;

the second is the study of the object of the research by experimenting with its model.

thirdly - based on conducted modeling the decision is making concerning the best possible management of the object of the research.

The methodological basis of the system approach in the management of economic objects is widely covered in the works of foreign scientists: V. Volkova, A. Yemelyanova, A. Kukushkina, S. Pavlova and others [9]. Generally accepted classification includes three areas: expert assessment methods, methods of gradual formalization of tasks and formalized presentation of systems, fig. 1.

As we can see, the above classification is based on the degree of uncertainty of the input information, which depends on the possibility of its formalization and decision-making based on quantitative estimates. On the other hand, such classification of methods and models of a systems approach

does not give us an idea of their belonging to a particular area of research, which in our opinion is a disadvantage. This does not make it possible to determine which of the existing scientific developments is sufficient to solve the problems of a systems approach in economics, and which needs further improvement.

Expert evaluation methods	Methods of gradual formalization of the problem	Methods of formalized representation of systems
methods of organizing complex examinations; expert assessments; morphological methods; structuring methods (goal tree, networking methods); methods of group coordination of decisions	simulation dynamic modeling; structural-linguistic modeling; situational modeling	graph-semiotic modeling; topology (mathematical logic and linguistics); combinatorics, mathematical statistics

Fig. 1. Tools of the system approach

The scope of application of the system approach in competitiveness management are economic systems of different levels of aggregation: enterprises, industries, sectoral associations, the system of public administration in general.

The introduction of the proposed tools in the practice of individual businesses has led to the replacement of management emphasis. Now, within the frames of the system approach, enterprises are considered in such a way that in order to fulfill their own development goals, they must ensure the successful implementation of the set of corresponding business processes.

Thus, the process approach is reflected in the practical management of business processes [1], which extends the scope of its influence on the microeconomic level of management. Foreign and domestic researchers note two main points of view on the essence of the process approach in competitiveness management:

- the activity of enterprises is considered as a sequence of end-to-end processes, i.e. those in the implementation of which employees of different functional units are involved. Such process chain permeates the enterprise from its entrance to the exit and formalizes in the form of appropriate graphic tools. The main task of management is to increase the efficiency of each business process implementation, as part of the competitiveness of the enterprise as a whole;

- the activity of enterprises is also considered as a sequence of end-to-end processes, however, the main task of management, in this case, is to optimize the organizational structure by reorganizing the management system of enterprises, which is also called business process reengineering.

Summarizing current experience and works of local scientists we can conclude that the introduction of the process approach in management of organizations involves the following sequence of stages, fig. 2.

Practical aspects of using the process approach in the activities of economic entities are regulated by the following standards:

- ISO 9000: 2000 (International Organization for Standardization) - quality management system;
- TQM (Total Quality System) - a system of total quality management, which provides that product quality can be achieved in case of the quality of the organizational structure of the enterprise and the quality of all operations;
- PIQS (Process Integrated Quality System) - a quality management system that is integrated with business processes in the enterprise;
- WFMS (Work Flow Management System) - a system that allows to manage the workflows;
- ERP (Enterprise Resource Planning) - a system of planning and managing the flow of resources in the enterprise in the frame of its business processes. The focus of ERP systems is not only production activities, but also general business management, which additionally includes marketing and sales activities, accounting and financial management.

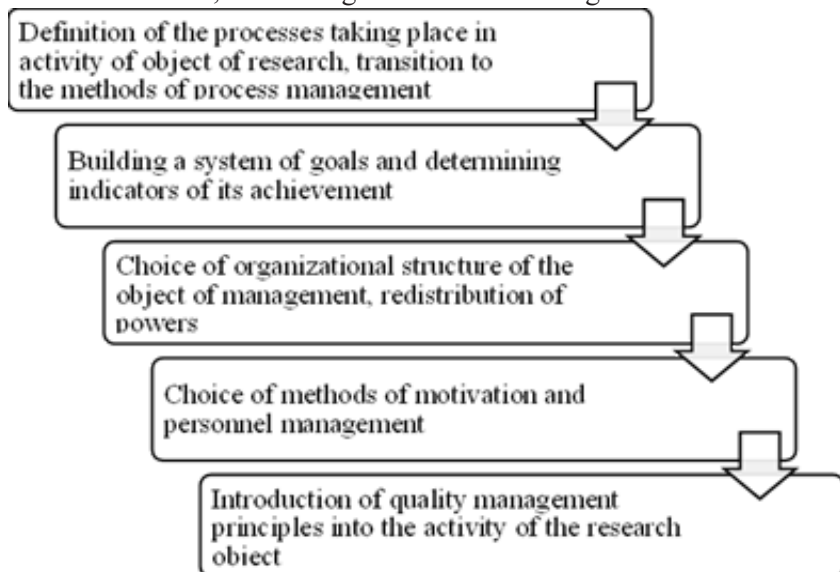


Fig. 2. Stages of implementation of the process approach

Another feature of the process approach, as a theoretical basis of competitiveness management, is the focus on management functions, which includes: planning, organization, coordination, motivation and control [8]. Thanks to the listed functions performs the transformation of the resources, which are given on an input of business processes in the form of the goods, or services which have value for the final consumer. So, the process approach considers providing of sustainable development as a series of interrelated management functions.

Let's schematically represent the elements of the system in the form of vertices, each of which has its own functional purpose. Accordingly, the direct and inverse relationships between them are indicated by arrows. In terms of graph theory, we will have an oriented graph. Then, a comparison of the essence of system and process approaches to the management of economic systems is conveniently presented in the form of fig.3.

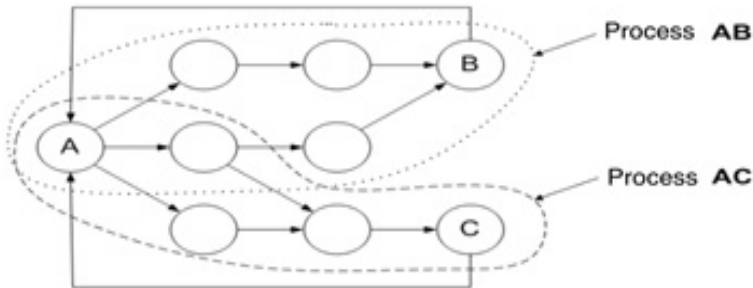


Fig. 3. Comparison of system and process approach in competitiveness management

Thus, in terms of a systems approach, we have a set of elements that, despite their own personal functional purpose, interact with each other and which are characterized by integrity, hierarchy and emergence. Let's associate a set of direct connections with the movement of resources of any nature, and the reverse - with the recording of changes in the state of the system. Competitiveness management in this case will be in following:

1. If the economic system is represented by an economic entity, the primary task is to create its organizational structure, with the definition of a set of elements, relationships between them and functional purpose. In the short term, the organizational structure may not change significantly, or be static at all. However, the experience of successful companies shows that organizational changes are a necessary condition for the adaptation of the economic object to the external environment. Economic and mathematical representation of such a system in terms of a systems approach is a purely

technical task.

2. If the economic system is represented at the macro level, then its organizational changes may either not depend on us, or occur over a sufficiently long period of time.

In this case, the presentation of such an object of research as an appropriate model is intended to ensure an appropriate level of adequacy. It is usually achieved by taking a closer look at the considering of the relationships between the elements of such a system.

3. The study of the features of the functioning of the object of the research is done by conducting experiments with its model, including simulation modeling. Despite the fact that each element of the system has its own functional purpose, the overall dynamics of development must be subordinated to strategic goals. This, in turn, is the basis for choosing the best solution for the management of the object of the research.

On the other hand, from the point of view of the process approach to competitiveness management, the emphasis is on certain chains of vertices and connections between them - processes. The integration of system elements into the processes is based on the set goals: the set of goals that need to be met, forms a corresponding set of processes.

The situational approach in competitiveness management in the conditions of sustainable development significantly expands the possibilities of practical application of the previous approaches. Its most important feature is the focus on the situation - a set of internal and external variables that decisively affect the performance of enterprises, industries, sectors of the economy, or the state at any given time. The fundamentality of this area of scientific thought is confirmed by the fact that the situational approach is the basis of the teaching methodology of Harvard Business School, which has accumulated a significant number of typical cases on various aspects of management in a market economics.

1. Leading world scientists who have studied the principles of situational approach are: I. Ansoff, G. Kunz, M. Mescon, M. Parker, T. Peters, M. Porter, F. Hedoury and others [10]. Ukrainian scientists have studied this issue less actively - some aspects of the situational approach are reflected in the works of V. Besedin, V. Gerasymchuk, V. Krutko, E. Panchenko, F. Khmil and a few others. Situational management should be used in cases where a complex economic system is characterized by the following properties:

2. Uniqueness. Each economic system is unique in its composition, properties and connections. Therefore, standard typical management methods are unacceptable.

3. Lack of a formal purpose for the existence of the socio-economic system (target function), which leads to the impossibility of its optimization.

4. Dynamics. Over time, the structure of the relationships between the

elements of the economic system may change.

5. Incomplete description of the economic system due to the uncertainty of internal or external factors.

6. A complex economic system is characterized by a large dimension of input data and control parameters, which does not allow the use of standard methods of simulation modeling for a reasonable period of time.

Accordingly, each stage of situational management can be represented in the following way:

$$S_i : Q_i \xrightarrow{U_k} Q_j, \quad (1)$$

Where - complete situation, which consists of the current state of the economic object, knowledge about it and methods of managing it; and - respectively, the current and future state arising in the system; - possible managerial influence on it.

Given all the above, the tools of the situational approach can be presented as follows, fig. 4.

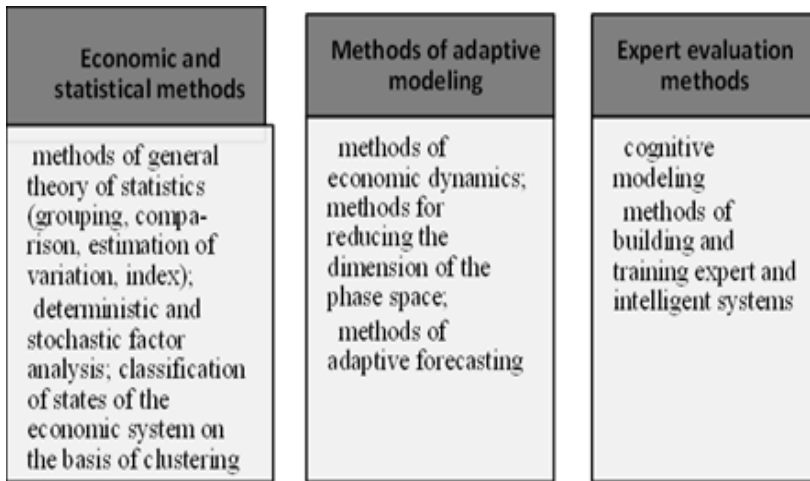


Fig. 4. Tools of the situational approach

Thus, the analysis of modern scientific directions of foreign and domestic scientists conducted within the frames of this research showed that system, process and situational approaches can be the basis for managing the competitiveness of a particular object of management.

However, the possibilities of applying any single approach, without interrelationships with others, are limited, as they cannot provide a comprehensive picture of the current state, modes of operation, internal

structure and use of experience with existing tools. Almost all basic research is based on the synthesis of these approaches in a management.

The scientific novelty of the study is the analysis of competitiveness management tools used in systemic, process and situational approaches to make effective management decisions and ensure sustainable development and, unlike existing ones, based on modern experience of using economic and statistical methods and models.

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## **PART 4. INNOVATION ASPECTS OF FORMING SOCIAL, EDUCATIONAL, AND INFORMATION SECURITY**

### **ORGANISATIONAL CULTURE IN HIGHER EDUCATION INSTITUTIONS**

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Organisation culture is the driving force of the organisation, what makes higher education institution (HEI) different from others, by its values, basic assumptions and norms, beliefs, symbols, leaders, language and different other concepts of internal culture of the organisation. It is important to understand that culture can no be defined as good or bad, it should be analysed as effective or not in terms of goals of the organisation and in relationship with its effectiveness in context of the development of the organisation. and In this study definitions of the organisation culture are analysed as well as different classifications of organisation culture are provided. Aim of this study is to analyse importance of organisation culture in higher education institutions (HEI) and to highlight main concepts of the development of organisation culture and it directions.

Defining organisation culture.

Since the 19th Century connection between the concepts of the organisation and culture are being studied. Social dimensions of work were recognised as important elements of effectiveness at 1920s through the Hawthorne studies. (Listead, 2001)

The concept of organisation culture is commonly understood as beliefs, values and behaviour patterns of the certain organisation, which are shared by members of an organisation. Organisational symbols, myths, stories are the concepts what can be used to socialise people within the organisation, in order to provide certain, common direction of the culture in the organisation. Concept of organisational culture is usually distinguished from corporate culture, as it is less controlled my the managers of organisation and is occurring more naturally. (Schein, 2004)

An organisational's culture is reflected in what is done, how it is done, and who is involved doing this. It concerns decisions, actions and communication on instrumental and symbolic level. (Tierney, 1998)

Authors of the Harvard Business Review state that organisational culture, together with the strategy of the organisation are among the primary levers at top leader's disposal in their way to maintain organisations viability and effectiveness. Organisational culture expresses goals of the company through its values and beliefs, as well as guides activity through shared assumptions and group norms (Groysbeg, 2018). Schein (1990) states importance of understanding culture - better understanding of it can lead employees to understand the forces acting within them that define who they are, that reflect the groups with which they identify themselves.

Organisational culture can be defined in many ways, but one of the most popular definitions are stated by E.Schein as culture of a group can be defined as a pattern of shared basic assumptions that was learned by a group as it solved its problems of external adaptation and internal integration, what has worked well enough to be considered valid and, therefore, to be taught to new members as the correct way to perceive, think, and feel in relation to those problems.

Michael Morcos defines an organisational culture as characteristics, what is originated inside every organisation, what affects morale and engagement of the employees. It is also stated that organisational culture differentiate extraordinary companies from the rest, as it governs revenue rates and influences company performance and profitability (Morcos, 2018).

Organisational culture can be defined in many ways, but one of the most popular definitions are stated by E.Schein as culture of a group can be defined as a pattern of shared basic assumptions that was learned by a group as it solved its problems of external adaptation and internal integration, what has worked well enough to be considered valid and, therefore, to be taught to new members as the correct way to perceive, think, and feel in relation to those problems. By E. Schein organisational culture consists of several critical elements, except of well known such as norms, behaviour patterns, rituals and traditions (Schein, 2004).

Organisation culture implies structural stability in the group. Any "cultural" element of the group is understood as not only shared, but also stable, as it belong to the whole group. The third characteristic of the organisational culture is Depth. As often unconscious part of a group, organisational culture is less tangible and less visible as other parts. Also it should be noted - the more deeply something is embedded, more stable it gets. Breadth of the organisation culture can be stated as - once it has developed, it influences all aspects of the organisation's functions, its environment, internal operations. The fourth characteristic that Schein

implies by the concept of organisational culture what leads to the stability of the concept - forming of the patterns and integration of the elements to the wider paradigm or “gestalt”. Patterning or integration itself comes from the human needs to make an environment as orderly as it is possible, as disorder makes people anxious, as a result they try to develop system for processes to happen in certain order and in a predictable view. (Schein, 2004)

Classification of Organisation Culture.

Organisational culture can be classified in various ways. Geert Hofstede classifies it by national types of the culture, Edgar Schein provides three cognitive levels of organisational culture.

Geert Hofstede, one of the most important key figures in the organisational culture, developed concept what shows how cultural and local groups affects cultural behaviour.

According to the Geert Hofstede, there are majorly six six cultural dimensions:

Power distance is mentioned as first factor and is defined as acceptance of the less powerful members that power in the organisation is distributed unequally. Factor represents inequality and power in the organisation, what also can be considered as extremely fundamental facts of any society, as all societies are unequal. There are ten differences between the small and large power distance societies. In the small power societies use of power is legitimate, parent treat children as equal, older people are neither respected or feared, education is based on the student-centred approach, etc. In large power distance societies power is a basic fact of society, parent do teach their children obedience, older people are both respected and feared, education is teacher centred.

Uncertainty avoidance deals with a society’s tolerance for ambiguity. Uncertainty avoidance indicates if members feel uncomfortable of comfortable in unstructured situations. Uncertainty avoiding cultures try to minimise the occurring of the unstructured, surprising and different from usual situations by strict behavioural codes, laws and rules, where the is only one absolute truth.

Individualism is the opposite of collectivism with strong individual characteristics of organisation, where everyone in the organisation is supposed to take care of himself, have strong right of privacy, personal opinion is expected and tasks prevails over relationships.

Masculinity versus its opposite, femininity, refers to the distribution of values between the genders which is fundamental issue for society. This factor refers to the differences in male and female values on the culture of the organisation.

Long- term vs. Short-Term orientation has a strong correlation with economic growth. Some organisations do focus on short or long term

relationship with employees. This dimension relates to the significance attached to the future versus the past and present. In short-oriented societies individual value traditions, nepotism and donations, while in long-term orientation societies individual value savings and determination.

Indulgence versus restraint is a sixth dimension, added by Hofstede in 2010. Indulgence stands for the free gratification of the human basic needs and natural desires, while enjoying life and having fun. But the opposite - restraint, what usually stands for society that controls gratification and regulate the life of the people by strict rules and social norms.

During the further years, Hofstede dimensions have been criticised, as his model do not cover diversity within the national cultures, as well as he proposes less of a role for people in developing cultures (Hofstede, 2011).

Edgar Schein in his research provides three levels of culture which are connected between each other and are shown on the following Fig. 1.

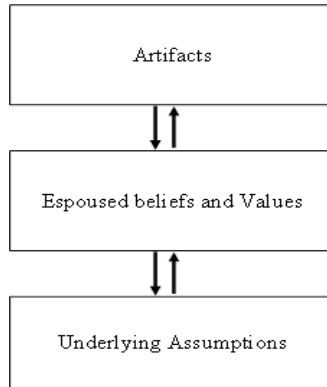


Fig. 1. Levels of Organisational Culture (Schein,2004 )

Levels of the organisational structure by Schein can be explained by following concepts:

- Artifacts are visible organisational structures and processes, which lays on the surface of the organisation. Artifacts include visible products of the group like architecture of its physical environment, language of the group, technology and products, style, artistic creations, as well as it is impersonated in the clothing, manners and emotional displays. Climate of the group is an artifact of the deeper level, as visible behaviour of its members. Artifacts also include organisational processes how specific behaviour is becoming and routine, as well as structural elements like organisational charts and formal descriptions how does organisation works.

- Espoused beliefs and values are the strategies and goals of organisation, it's philosophies. When group is newly created, it reflects someones original beliefs and values, as proposed solutions to complete the task what it faces.

Individuals, who can influence the group to adopt their certain approach of problem solving mechanisms, will later be identified as leaders of the group. If the espoused beliefs and values correspond to the underlying assumptions, articulation of those values will be helpful in finding identity and mission of the group. While analysing beliefs and values it is necessary to distinguish those that match with underlying assumptions and those that are rationalisations or aspirations for the future. It is very common situation, when such beliefs and values are so abstract, that they can be even mutually contradictory. Espoused beliefs and values of the organisation often cover not all the areas of the behaviour of the organisation and many areas can be left unexplained, leaving the feeling that not whole culture is explained and covered. In order to get a deeper level of understanding and predict future behaviour correctly, category of basic underlying assumptions should be discovered and researched.

- Underlying Assumptions are unconscious, take-for-granted beliefs, perceptions and feelings. Basic assumptions have become so taken for granted that there are not huge variations within a social unit. Theories-in-use are usually non confrontable and non debatable, as a result those are extremely difficult to change. Culture as a set of basic assumptions defines for us what to pay attention to, what does certain things means, how should we react on certain situations, and what actions should we take in various situations. (Schein, 2004)

#### Organisation Culture in Higher Education Institutions.

External demographic, economic and political factors are influencing higher education institutions. Cultural influences occur at many level, within the any department of the institution, as well as even at the state level (Tierney, 1998). Higher education institutions, just like other organisations what is working in the dynamic environments, have to respond as quick as possible on the changing environment.

Organisational culture can be considered as a tool what should be used by HEI in order to improve the quality of services provided to the students and general cultural policies for the achievement of the goals of the organisation (Ortiz-Colon, 2017). Higher education institutions has a role of the organisational actor and chooses its own strategies in the context of the challenges they have, like socio-economic challenges of the society and economics in modern world. HEI are building infrastructure of knowledge, as well as expanding their values and beliefs within the students (Serdenciuc, 2016).

Organisational culture in higher education institutions and business organisations differs in therms of mission, external environment, image of the organisation, leadership processes, interpersonal relationships and management processes. It is necessary to discover strategies, and values that

may contribute to building and organisation culture in the higher education institution based on creativity and innovations, what will help to shape the identity of the higher education institution. It is needed to answer the questions why does this HEI exists, how does it reach its mission and goals and what does it offer in terms of teaching and research. The answer to the question “why does HEI exist?” is the part of the organisational culture. Answering this question would inspire students and help the HEI to hold the organisation together.

It is necessary to understand the determination to serve students, to educate them by giving all the necessary tools in order to help them find their way in life. Better structures of governance and flexible communication systems should be designed. Structures and systems based on the autonomy and freedom, what is related to the teaching and research, personnel hiring, and easier access to the HEI research grants should be implemented, together with transparency in decision making processes, access to information and flexible administrative structures. Teaching and research should have strong mechanisms of support. New fields of teaching, national and international grants, new teaching and learning systems should be implemented to reach the goal of strong and understandable organisational culture (Coman, 2016).

Organisational culture is being studied since the 19th Century and is considered as a very important element of the organisation's effectiveness in terms of reaching its overall goals and development directions. The concept of organisation culture is commonly understood as beliefs, values and behaviour patterns of the certain organisation, which are shared by members of an organisation. Organisational symbols, myths, stories are the concepts that can be used to socialise people within the organisation, in order to provide certain, common direction of the culture in the organisation. Organisational culture can be classified in various ways. Geert Hofstede classifies it by national types of the culture, Edgar Schein provides three cognitive levels of organisational culture. Organisation culture in the HEI can be considered as a tool that should be used by HEI in order to improve the quality of services provided to the students and general cultural policies for the achievement of the goals of the organisation. By building open relationships between students and HEI, transparent management system and support of research, HEI can develop their organisational culture to the new level, which would attract students and develop competitiveness of the institution.

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## **APPROACH TO MANAGEMENT OF PERSONNEL AS A WAY TO ENSURE ITS SAFETY AND EFFECTIVENESS IN THE CONTEXT OF THE COVID-19 PANDEMIC**

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The modern world is changing, and new technologies are constantly emerging that are changing people's lives. Inventions of recent years are amazing: a robot vacuum cleaner, an electric car, and instant messengers with the ability to exchange information instantly. Today, we cannot ignore these changes, we must anticipate them, be constantly in the trend [10]. Managing people is also a lively, flexible process that is constantly being improved.

If earlier it was possible to frighten the employee, force him to work by force, but today such methods do not work. Only the right motivation of the staff can give results for the company. The emergence of a remote form of work is also an interesting innovation, which presents certain difficulties for the HR management process. The coronavirus pandemic that occurred on our planet in 2019-2020 has made adjustments to many processes, and it has shown that we need to be prepared for a variety of environmental challenges. Remote work may well become an extremely convenient form of workplace organization. A person at home feels home comfort, in this cozy atmosphere, and she may well have the most interesting projects. Creative thinking is unique, the birth of creative ideas is not subject to strict laws and regulations, in a cold and business office, a person's thinking experiences a certain pressure from the working environment. You can't give a task to complete two or three creative projects a year, creative ideas are not born like cars on an assembly line. But certain conditions for the emergence of creative ideas are extremely important. American social psychologist Kurt Levin identifies three main styles of management - authoritarian, democratic and liberal; this approach has been considered the main one for many years. It is often emphasized that all of three styles of management are important and a great manager should master all three. Such a versatile manager was undoubtedly appreciated in any enterprise, but how will he manage in the current situation? The need to generate creative ideas puts the modern Manager in a new situation, a situation where a new management style is needed. A management style that will ensure effective management of its employees in a remote work environment, and will also be aimed at creating creative projects [3]. After all, only creative projects provide organizations with competitiveness in a situation where consumers constantly want something new and advanced. American Manager-innovator Elon Musk – one of the first managers who tries to apply such a new style, his company Tesla Motors is an example of a modern high-tech company, it produces innovative products, it uses the labor of robots, innovative practices of managing people are applied. Similar management practices are used in other companies – Alphabet, Amazon, Microsoft, Yandex, Kaspersky Lab. This article is devoted to these challenges of modern management. The authors will try to formulate the components of a new management style – creative style.

Within the framework of innovation management, companies traditionally use three main management styles – authoritarian management style, democratic and liberal. The main difference between these styles is that they allow freedom in work activities and exercise control. At the same time, the liberal style was considered the most suitable for various creative companies, since it allows for the maximum possible delegation of authority

and soft control. However, with this style of work, employees still had to be at the workplace, while performing their duties according to the work schedule. A certain revolution in the emergence of a new management style was carried out by Hewlett-Packard, which was the first to enter the territory of Silicon valley. This company began to use a new organizational structure – edhocratic, which was focused on creating comfortable conditions for employees who think creatively [2, 4]. Subsequently, various management practices emerged in various companies in Silicon Valley that were designed to encourage original thinking. Especially successful was Google (today the company is part of the Alphabet holding), which gave employees the opportunity to create their own projects during working hours, the possibility of a free work schedule and, finally, remote work. Then the same opportunities for employees were provided by Marc Zuckerberg's Facebook. The same time, it was initially assumed that the employee should be located on the company's territory. For this purpose, special spaces were created – parks, isolated premises, cafes, and co-working spaces.

A new management style Musk – his groundbreaking projects have been fantastically successful. Today, Elon is one of the five richest people in the world. Elon applied a new practice in management, he found successful managers in various parts of the world – from Canada to Australia and gave them the widest possible authority. They needed to design a new plant themselves, put together their own team, and Elon considered it important to motivate the creative ideas of his employees. Musk appreciates people who literally come up with creative ideas on the go; he himself has repeatedly emphasized this. One of his employees suggested using a Tesla tablet instead of an instrument panel in a Tesla electric car, and for this innovation he immediately received a package of various bonuses. So, motivation is a very important factor in creative thinking, and creative thinking should be evaluated higher than simple performance.

The coronavirus pandemic, which began in 2019 and continues to this day, has made its own adjustments to the work of organizations around the world. In the context of the spread of infection, remote work is becoming popular, which today is becoming quite comfortable and productive. The emergence of a large number of instant messengers with video conferencing, high-speed Internet, and mobile gadgets has created a unique environment for virtual presence. Now it is not necessary to go to work, it is quite possible to work at home, and the results will be even higher, because the person is in the most comfortable conditions. The question arises-how to manage this process? How do I monitor the results of my work? Previous management styles are powerless in these working conditions; they appeared and took shape quite a long time ago, in the conditions of mandatory presence at the workplace. But what if a person's workplace is at home? By the way, the mass

spread of remote work is just a positive moment, just creating conditions for the emergence of a new management style and creative breakthroughs. The pandemic has been the trigger of the process.

The implementation of a creative style is determined by certain factors. An organization that uses this management style should strive for innovation and breakthrough creative solutions. This is a very important condition. The phrase by cofounder Google Company Sergey Brin can be used as the organization's philosophy "Happy employee works more productively". A manager who implements a creative management style should start with himself. The drive for innovative thinking and the ability to work remotely are the main components of a new type of manager. The pandemic may be over, but this does not mean that remote work will become unclaimed. On the contrary, the whole world has realized the advantages of remote work – home comfort and comfort, which provide very good opportunities for non-standard thinking. In the modern world, only non-standard, breakthrough projects ensure an increase in competitiveness and sustainable development of the organization [6]. The team of the organization should be charged with creative projects, and the atmosphere of creativity should hang in the air. So, the first components of the creative style are the atmosphere of innovation in the organization, the manager as a driver-conductor of this management style. But that's not all. How can a manager perform the most important managerial functions – motivation, control, and coordination-in a creative environment?

Let's start with motivation. Motivation is the most important condition for implementing a creative management style. Motivation should be a complex of impacts: a decent salary, a social package, and bonuses. All of this gives the employee a sense of confidence in the future, he works without being distracted by fears about his future. Here we must proceed from international standards, according to the ILO recommendations, an employee should not receive less than \$ 3 per hour, but since we are trying to evaluate creative work, the lowest salary ceiling here should be at least 2-2.5 times higher [8]. In addition to the salary, there should also be a significant bonus part for a fully completed project, as well as various bonuses (free dining, dry cleaning, hair salon, fitness, paid summer vacation).

Control is also very important in the work of the organization. However, it should be unobtrusive and not take up much time. For example, before the pandemic, Alphabet held five-minute stand-up flyers every day, where everyone talked about the work they had done. This allows employees to quickly and without unnecessary bureaucracy report on completed tasks, and the Manager can quickly get information about the situation within the team. When working remotely, such training sessions can be conducted in a video conference mode or even by creating a group in the messenger, where

literally every hour the manager can "keep abreast" of the team, clarifying the most important aspects of their work with subordinates. It is important to give up a variety of paper reports and tedious screenshots, and trust the employee. Such control will give more time to the employee and Manager; in addition, it creates an atmosphere of trust and solidarity.

Team coordination is greatly simplified by using instant messengers in your work. It is enough to create your own group and constantly be in contact with your subordinates. Do I need a video conference format? Most likely, no, text correspondence is enough. But in exceptional cases, it is advisable to use the video conferencing format – this disciplines employees. In fact, the remote format of work has a lot of advantages – saving on workplaces and renting premises, simplifying control and coordination of work of subordinates, reducing transaction costs, working in conditions of home comfort and comfort [7].

A very important factor is the home environment for remote work. The area of the apartment itself does not play a special role, a modern laptop or tablet does not take up much space. However, the employee may be significantly hindered by their children, parents, spouse, or Pets. The manager should keep this situation in mind. Employees who are prevented from working at home will not be able to perform their work duties efficiently. The manager is required to conduct a small interview with the employee or conduct a survey, but the best option is to come and see what conditions the employee lives in. If the conditions do not meet, it is better to provide the employee with a place in a co-working space. Corporate co-working is a platform inside an organization with increased comfort, which is designed to replace the employee's own home during remote work. Such a platform is necessary for employees who cannot work at home for various reasons. The atmosphere of a corporate co-working space should resemble a home – made one-lots of different paintings, upholstered furniture, vending machines with a choice of drinks and a variety of snacks (chips, snacks, donuts).

Using a creative style in the framework of innovative management of an organization is a good opportunity to make a breakthrough, to reach a new level, including foreign markets. Today, many Ukrainian organizations face serious challenges. This means improving the quality of products, entering foreign markets, producing innovative products, and generally maintaining competitiveness in a constantly changing environment. Our country needs to start mass production of modern processors, electric vehicles, medical devices, and 3-Dprinters. All this can be done by applying new management approaches. One of these approaches can be the application of a creative style of personnel management in the framework of innovation management in the organization. The application of creative style should begin with

training managers; they should promote the creative ideas of employees in every possible way and encourage remote work. The working schedule for remote work should be discussed in advance, it is better, of course, if breaks are provided. Organizing remote work is very important. This can include notifying employees about the company's new philosophy, equipping employees with mobile devices, and revealing the motivation mechanism. Such transparency captivates employees and creates a sense of corporate ownership.

Today it is time for a fairly tough competition for the consumer. At the moment, Ukrainian companies need to make a serious leap forward in order to get ahead of their Western competitors. It should be taken into account that most Western companies were created for decades, during which time they have accumulated great human potential, management practices, and most importantly, consumer confidence [9]. But there are also "upstart companies" in the West. Such companies can be quite attributed to Alphabet, Amazon, Facebook, and Tesla. These companies appeared relatively recently, but thanks to a breakthrough, they were among the leaders.

For most of companies in Silicon valley is that, firstly, the small size of the territories was the explosive nature of the development of small firms, often producing the same or similar products; secondly, asset studio firms, finding camping in a state of fierce competition, were forced to constantly learn from each other, to adopt technological and organizational innovation in the process of institutional isomorphism; thirdly, they grew up on an intensive exchange of knowledge and information on the horizontal mobility of skilled personnel migrating between firms and general supportive infrastructure" [8]. By the way, it cannot be said that such management practices bear fruit only in the United States, they are also successfully used in Communist China, where such advanced companies are located (a branch of Alphabet, Alibaba, Tencent). It should be added that Alibaba and Tencent are among the top ten companies in the world by capitalization.

Ukrainian organizations are also quite capable of making such a breakthrough. You just need to believe in your employee and create appropriate conditions for him. Today a moment has come, we must act. It is very important to respond to the challenges of the external environment and introduce new management practices [1, 2, and 4]. Denying the success of the above-mentioned companies, preserving outdated views in the work of the organization will lead to a drop in competitiveness. The use of a creative style creates conditions for the constant search for new projects, including in other areas of activity. This is important for companies whose products are rapidly becoming obsolete or losing demand. In this situation, you can hedge such risks in advance by diversifying your products. A good example is the Dyson Company, which, observing a decline in demand for vacuum

cleaners created a division for the production of electric vehicles in advance.

In accordance with the main management functions (planning, organization, motivation, control, coordination), the introduction of a creative style should begin with planning. It is necessary to plan the changes that will be carried out in connection with the implementation of this management style. It is important to prepare a corporate co-working space for those employees who will not be able to work from home for various reasons. The second point is that it is necessary to develop an updated strategy of the company, focused on a breakthrough in improving competitiveness.

Organizing the use of creative style should start with equipping employees with the necessary equipment for remote work (laptops, tablets, and smartphones). This is important, since personal gadgets are usually outdated. For high-quality remote work, you need to use state-of-the-art and high-performance mobile devices. All expenses of the organization for such devices will be recouped in the future with interest thanks to breakthrough projects and savings on jobs. By the way, the vacant office space can be rented out or used as storage space. All you need to do is leave the space for a corporate co-working space.

Control in an organization should be extremely soft, unobtrusive, and comfortable for employees, and based on maximum trust in subordinates. Even when recruiting staff, it is worth paying attention to purposeful employees who strive for self-learning [8]. Subsequently, you need to build a trusting work with them, a special creative atmosphere. The employee must feel important to the organization.

Coordination in the organization is simplified with the use of remote work, the use of instant messengers. Nevertheless, the Manager needs to be constantly "in the field", indicate his presence, and be interested in the plans of employees. When working on a project, a Manager can break one large project into several small ones and assign them to teams within the team. Overall, teamwork should be encouraged.

Thus, we can draw the following conclusions. Remote work plus stimulating creative thinking create the conditions for using a creative management style of the organization. This style provides opportunities for the Ukrainian organizations to make a breakthrough in terms of competitiveness, including in foreign markets. This is an extremely important circumstance for Ukrainian people today. You should switch to this management style as quickly as possible. A creative management style creates a special creative and safe atmosphere in the organization, each employee strives to create a breakthrough project, and the organization's staff will constantly be in search of new ideas. Therefore, the issues of creating a safe atmosphere in the organization will be the subject of our further research.

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## INFORMATION WEAPON IN THE INFORMATION CONFRONTATION

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Techniques of information wars of the XXI century have become much more sophisticated and therefore more dangerous due to the fact that specialists who plan and carry out information attacks are armed with modern knowledge in the field of psychology and information technology. This allows them to influence the subconscious and thus control our actions. That is, the methods of long-known traditional propaganda have been replaced by psycho technologies based on the latest advances in psychological sciences, characterized by high efficiency of informational influence not even on consciousness but on the human subconscious, which may not realize not only the purpose of influence but also happens.

The vital activity of modern society is measured by the development level, functioning quality and the information environment security. Therefore, the current level of the information sphere development is characterized on the one hand, it is the intensity and mobility, and on the other, it is the strengthening of information confrontation.

Information confrontation is a rivalry of social systems in the information-psychological sphere and is closely connected with such a concept as “information weapons”. The modern world is characterized by an incredible number and variety of weapons. Information weapons differ from other types in that they do not have an open military character and do not use, at first glance, open violent actions during their use, but in terms of effectiveness they can be a weapon of total impression.

The information infrastructure of society is a target of information weapons. In particular, Ukraine’s information infrastructure is a vulnerable area for offensive means of information confrontation. The most “insightful” use of information weapons is related to human consciousness and its impact on human behavior.

Information weapons pose an exceptional danger to the information computer systems of public authorities, weapons and military management systems, banking and financial systems, the economic sphere, as well as to people, influencing their behavior.

According to recent research there is no single definition of “information weapon”. A universal and standard definition is the interpretation of the “information weapon” concept as a set of informational influence means on technology and people. That is, the objects of information weapons influence on the one hand is technology (communication systems, management and control of state, regional and private structures, military authorities, media and media, on the other hand are people (especially human intelligence, individual collective and mass consciousness).

Information weapons are unique in the nature of hitting targets, as they are non-lethal, covert and characterized by selective damage, and given its scale of application, it only adds to its advantages. In addition, such weapons preserve material values, human resources and the environment. Information weapons are essentially “dual” because they combine both electronic and human aspects.

Information weapons become a threat to the national security of our state, given the crisis in the system of government, especially the course of the war in the east of the state and all vital spheres of society.

The modern strategy of using information weapon is based on J. Warden's model, which reveals its essence. This model is called the “five-ring theory” [2]. J. Warden approached the problem through a systematic approach, according to which the centers of the enemy's gravity were placed in five spheres (in the form of concentric circles). The “five rings” are the constituent centers of the country's life: at the center of the nucleus is the political and military leadership of the state. The next ring is the country's infrastructure; further is basic production (especially industrial and energy base). The fourth ring is the population (which is not subject to physical destruction, but rather is demoralized) and the fifth is military structures. That is, the five components are the country's:

- leadership and the system of public administration;
- production (basic industries);
- transport network;
- population and armed forces.

In the case of neutralization of any ring, the efficient functioning of the entire system is disrupted. Depending on which ring is out of order, the malfunction can be “serious” or critical.

The essence of the theory is based on the fact that the strategic plan of information confrontation is aimed at destroying the main “centers” of the governing structures in the country.

As for the single classification of information weapons, it does not exist. We will stop (rather we will remind) the most generalized and widespread classification.

According to the area in which the information confrontation is

conducted, information weapons are divided into two types [2]:

1. Information technology weapons (equipment), which include special information or communication tools that are designed / directed to adversely affect the information infrastructure.

This type of information weapon includes computer viruses (programs), sniffers: electronic tracking and interception programs, logic bombs: software viruses similar to sniffers (“Trojan horse” technology) platforms embedded in software, “zombie” technology, viruses used via the Internet and e-mail bombs.

Today there is a more complex and effective information weapon – electromagnetic (electromagnetic pulses), which is designed to destroy information systems. Mass use of such weapons disrupts the functioning of information and procedural infrastructure: it paralyzes military control systems and vital areas of the enemy’s production.

2. Information and psychological weapons have the impact on the person, which includes specially formulated and designed information aimed at special processing (psychologically, ideologically) of the population, in order to “undermine” the moral values of society, the system of public opinion, management decisions [6]. Such a weapon carries out a targeted attack and affects the psychological state of the individual / group and society as a whole. Such influence is realized with the purpose of oppression, suppression and restraint of will simultaneously: technically, visually, virtually, physically, medically and by means of sounds.

In addition, such weapons can act as traditional methods, the above-mentioned misinformation, omission of certain problems, and alternation of true / false information, imposition, blocking, substitution and distortion, misrepresentation of information, deformation of information.

Such weapons include non-traditional technologies:

- psychotropic weapon, which is associated with bio energetic research (human bio field energy);
- psychic perception (hypersensitive perception);
- telepathy (transmission of thoughts at a distance);
- psychokinesis (thoughts influence on physical objects);
- telekinesis (power of thought and its influence on physical objects) [2, p. 118].

Note that psychotropic weapons are considered as psychophysical weapons, which includes psychotropic drugs, suggestive methods of influence (known as suggestion technology, “25 frame”, NLP), as well as various combinations of these tools.

That is, information weapons include a wide range of techniques and methods of informational influence on the enemy: from “simple” techniques misinformation and propaganda and to “complex” - electronic warfare,

electromagnetic weapons.

As for the information space of Ukraine, it has long been an “arena of hostilities”. Note that particularly effective information weapons can be used against a country where there are social tensions and conflicts of varying intensity, although information weapons in such situations create only the necessary background.

Given the fact that the information infrastructure of Ukraine is just being formed, so there are some dangers in its functioning and this is due to:

- lack of a unified state policy in the field of information security of the state;
- insufficient funding for information security measures;
- increasing the technological gap between the world’s leading countries and Ukraine in creating competitive information technologies;
- using non-certified both domestic and foreign information technologies, means of information protection, means of information, telecommunications and communication in creating the Ukrainian information infrastructure;
- outflow of human resources (specialists in this field).

Also, the problem of developing a strategy to counter not only Russian information aggression and the use of various types of information weapons to our country is relevant for Ukraine. Such a strategy (program) should reflect the basic principles of combating information weapons and correspond to Ukrainian realities:

- advanced foreign policy planning in conducting information confrontation with the aggressor country (certain concepts development, the implementation of which is in the national interests of the state);
- participation in the formation of the international agenda and the growth of the country from a subject to an object of international relations;
- use (rather risky) in the technological sphere it is rigid asymmetric confrontation: (for example, the use of technology “destabilization”, which involves increasing the instability of institutions and creating problems in the political, social, investment and business spheres; “locking technologies” involving the use of unmanned aerial vehicles (drones); the latest concepts “technologies of “subversive innovations” and technologies “black swans” or “edem-technologies, which have their own characteristics to appear unexpectedly [4, c.34].
- specialists’ training in information warfare (for example, through NATO training centers);
- changing the approach in information confrontation and the use of information weapons from defensive to offensive.

Regarding information weapons as offensive, it should be noted that:

1) The offensive nature of the information weapon makes it possible to outline and clarify the potential of the enemy’s aggression.

2) The effectiveness of offensive information weapons is associated with an information attack (sometimes assault), which can be preventive (precautionary / anticipatory) nature.

3) At first glance, the “softness” of information weapons can be “insidious”: in the long run, such weapons can create big problems.

4) Information weapons can have the effect of “dichotomy” [4, c.34] in the case of a continuous counteroffensive, which is especially important for the Ukrainian-Russian information confrontation, it can be directed in such a way that it becomes self-destructive for the enemy, the so-called “the system overheating” (for example, the collapse of the USSR).

Quite often the result of the information weapons use is unpredictable; does not coincide with the primary goals and the direction of influence can change radically. Therefore, political experts and analysts often point out that the Ukrainian-Russian information war may end in defeat for Russia, as it “tied” in this confrontation, clinging to Ukraine (and not only) as a “seed bull” and “exhausting” not only opponents, but also themselves.

For the first time, the term "Information War" was taken in the report of Thomas Ron "Weapons Systems and Information War" prepared in 1976 for Boeing. Then he caused an increased interest by some experts in the US special services.

In the framework of the information war there are events of offensive and defense character. Accordingly, existing and actively developing new defense and offensive means of conducting information confrontation are already improved, which will allow the information advantage over the opponent.

With a comprehensive approach to the classification of types of threats, their information security can be divided into threats of general orientation, which are divided into the following types:

- threats to constitutional rights and freedoms of man and citizen in the field of spiritual life and information activity;
- threats of information provision of state policy;
- threats of development of the domestic information industry, including the industry of informatization;
- threats of safety of information and telecommunication facilities and systems.

The defeat of objects is their destruction (disintegration), suppression and depletion. The destruction of an object is to cause it such damage that it completely loses its combat effectiveness. Suppression involves inflicting such damage (failure) on the object and creating conditions for it under which it is temporarily deprived of combat capability, its maneuvers are limited or control is violated. The main purpose is the moral and psychological impact on the object and thus reduces its combat effectiveness and the prohibition

of normal functioning.

Since the main element of the information infrastructure are people whose motivation is based on their physiological, social and information needs, the correctly calculated application of the so-called information and psychological methods of influence has a direct pressure on the level of state security. This is especially true in Ukraine, where there is no organized system of formation and support in society of the necessary moral values, patriotism and civic responsibility for the country's fate. Scientific and technological progress in the field of information technology, media development erased national borders in the information space and created unprecedented opportunities to suppress the enemy with non-traditional means of destruction that do not cause physical destruction. Passing through the consciousness of each member of society, prolonged mass informational and psychological influence of a destructive nature creates a real threat to the existence of the nation as a result of the transformation of its historically formed culture, basic worldviews and ideological attitudes.

The main ways to use information weapons can be:

- damage to certain physical elements of the information infrastructure (destruction of power grids, interference, use of special programs that stimulate the failure of hardware, as well as biological and chemical agents);
- destruction or damage of information, software and technical resources of the enemy, overcoming of protection systems, introduction of viruses and logic bombs;
- impact on software and databases of information systems and control systems in order to distort or modify them;
- threat or terrorist acts in the information space (disclosure and threat of disclosure of confidential information about elements of the national information infrastructure, socially significant and military encryption codes, principles of encryption systems, successful experience of information terrorism);
- capture of media channels in order to spread misinformation, rumors, demonstrations of force;
- destruction and suppression of communication lines, artificial overload of switching nodes;
- influence on operators of information and telecommunication systems with the use of multimedia and software tools for entering information into the subconscious or deteriorating human health;
- impact on computer equipment of military equipment and weapons in order to disable them [6].

Note the main doctrines of information wars, which are used in the leading countries of the world. Chinese doctrine is specific, but not unique. A lot of countries around the world today are aware of the importance and

significance of the information component of the war, as well as a new type of weapon is information. The United States began to formulate a strategy for information warfare in the early 1980s.

France, Germany, Britain and some other countries are currently actively developing information strategies for attack and defense. It can be said that the existence of information warfare as a type or part of an armed conflict is beyond doubt.

The US Critical Infrastructure Protection Administration dates back to the formation of the Presidential Commission for Critical Infrastructure Protection in 1996. In pursuance of the President's instructions in this direction, the National Plan for the Protection of US Information Systems was developed, signed by the President on January 7, 2000.

The United Kingdom uses a legal framework based on existing laws, which can be largely applied to cyberspace - the Regulation of the Investigatory Powers Act, adopted in 2000. She notes that attacks on information systems can be considered a common criminal offense with all the ensuing consequences. This act allows the British government to intercept and read e-mail, as well as require decryption of personal files at the request of government officials.

The French consider the concept of information warfare, with two main elements: military and economic (or civil). The military concept provides for a limited role for information operations and is aimed at peacekeeping purposes. In this context, allies are not seen as opponents. The economic or civic concept includes a wider range of potential applications of information transactions.

The UN Group on the Information Society (UN GIS) was established in 2006 as a specialized unit of the United Nations on information technology, as an interagency mechanism to coordinate the policies of UN organizations to implement the Geneva Plan of Action and the Tunisian Program for information society.

In accordance with the above, hostilities in the information war are unfolding:

- in the information space in the technical is the field of creation, processing and accumulation of information;
- psychological sphere is knowledge, consciousness and the enemy thinking [2].

Since information is a necessary element that ensures the functionality of any system, the need to destroy infrastructure, manpower, enemy equipment in the information war is not a priority. The object is information stored or circulating in various systems of the enemy by control, intelligence, combat, as well as the minds of servicemen and civilians.

The success of information warfare depends on the achievement of three

main goals:

- control of the information space and ensuring the protection of their own information;
- providing offensive information actions;
- optimization of the armed forces overall effectiveness [5, p. 20].

Information weapons, which are used in psychological operations, affect the structure of human reasoning, being cognitive.

As a result, a person forms a new model (picture) of the world, beneficial to the manipulator. Information weapons use the idea of transforming the communicative environment surrounding the object in order to reprogram its behavior. As an information weapon in this aspect it is possible to use the following types of information:

- the introduction of a new, unknown object of information;
- input of distorted information;
- introduction of new rules of information processing.

It should be noted that information weapons directed against social systems are certain “means” intended for information and psychological influence on individuals and social systems through the individual and mass consciousness of people through the channels of dissemination (receipt) of information.

In the State Strategy, cyberspace should be considered as a clear element of the information space. This approach is consistent with the provisions of international standards. “Cybersecurity” is understood as a narrower concept than “information security”.

The cybersecurity strategy should be based on the following system of concepts:

1) information space is the sphere of activity related to the formation, creation, transformation, transmission, use, storage of information that has an impact, including on individual and public consciousness, information infrastructure and private information;

2) information security is the state of protection of the individual, organization and state and their interests from threats, destructive and other negative influences in the information space;

3) cyberspace is a sphere of activity in the information space, formed by a set of communication channels of the Internet and other telecommunication networks, technological infrastructure that ensures their functioning;

4) cybersecurity is a set of conditions under which all components of cyberspace are protected from the maximum possible number of threats and impacts with undesirable consequences.

Cybersecurity is increasingly seen as a strategic problem of the state, comprehensively affecting the country's economy, including the interaction of national software developers and management systems, manufacturers of

equipment and components to provide ICT infrastructure.

The core of the “problem field” of information security is to determine what the destructive indicators of information threats are. Mr. Cornish of the Royal Institute of Foreign Affairs in London (Chatam House) provides the following classification of information threats: activities of single hackers; organized crime operating on global Internet networks; ideological and political extremism; state information aggression [1, p. 21].

J. Goldgeier, a professor at the University of Washington, says that by definition, a cyberattack is not an “armed attack”, that is, it does not fall under Article 5 of the Washington Treaty. But then he concludes that: “if the Alliance means anything, it must unite to counter attacks that threaten NATO members” [3, p. 17]. Thus, in a short period of time, a system of specialized mechanisms and institutions for operational and strategic purposes was established in NATO.

Today there are no effective mechanisms to protect information resources from the use of information weapons by the enemy, as the scale of information dissemination in networks is extremely massive.

The first thing that is important for Ukraine in the information confrontation with Russia is to reasonably assess the threats.

Second, periodically carry out geostrategic analysis of the situation. Such analysis will further become the basis for outlining /developing a national concept of countering / neutralizing / protecting against information threats. Skillful possession of information weapons will ensure the national state security.

Third, although it is believed that information weapons are relatively cheap, but training is quite not a cheap field. To do this, Ukraine needs to be in the trend of the latest innovative research in the field of protection against information interference.

New challenges and threats to Ukraine should not only be theorized or put forward “correct” slogans (often formal), but also filled with actions and concrete answers. Such “response actions” must be asymmetrical, unexpected, sometimes “uncalculated”, universal, multifaceted, and bring the country victory in a complex and fierce confrontation. It is important to realize that the one who forms information campaigns wins.

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## **COMPREHENSIVE COMPETITIVENESS MANAGEMENT SYSTEM: ALLOCATION OF STRATEGIC RESOURCES, INFORMATION AND LEGAL SUPPORT FOR RISK PREVENTION, INTRODUCTION OF MARKETING INNOVATIONS**

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A flexible approach to the organization and reallocation of strategic resources is key to the success and implementation of the strategy. There are the following approaches to strategic resource allocation: resources are allocated equally to all areas; resources are allocated in proportion to needs; resources, primarily, are allocated to solve the most important problems for the enterprise.

The most rational, in our view, is the latter priority approach of strategic resource allocation. A close link between strategy and culture leads to maximum results, as corporate culture forms the corporate ethos of an enterprise, provides staff with a system of rules that determine how they behave and work, and ensures staff adherence to the enterprise's system of norms and values [2; 9; 10]. The following factors can contribute to the creation of a corporate culture that strongly influences on the strategy: a

strong leader who sets the rules and establishes the basic values and norms of behavior; the intention of the leadership of the firm to act in accordance with established traditions; manifestation of constant care for employees of enterprises; management based on maximum contact with employees.

A necessary condition for the development of an effectively competitive strategy, which ensures the acquisition of competitive advantages, is the availability of appropriate information support for competitiveness management [1; 4]. This subsystem allows to compare relative advantages and disadvantages of competitors in terms of their abilities and opportunities, to monitor actions of competitors, to warn the management of the enterprise about current and projected actions of competitors, to develop competitive strategies. Its creation is aimed at providing the enterprise with reliable and credible information about the market, competitive environment, competitors, structure and dynamics of demand, tastes and desires of consumers, etc.

The main task of enterprise competitiveness management is to create its own competitive potential with a clear focus on the market situation, taking into account competitive risk. This general task can be broken down into two separate tasks of fundamental importance. In the short term, the problem of current efficiency comes to the fore, i.e. converting existing resources and competencies into marketable competitive advantages, whereas in the long term, the problem is to develop new resources and competencies that would allow market chances to be exploited [3; 8].

It is advisable to improve the competitive potential of indicators such as technology, finance, organization of management and marketing.

The market implies the development of competition, and for companies to be competitive, they need to introduce new technologies, use new sales systems and carry out various financial operations, which certainly increase risk. In this situation, the enterprise can be wary, but do not avoid risk altogether, it is necessary to foresee and reduce it to a minimum level.

Competitive risk management is the management of risks and economic relationships arising in the business process, as well as a system of risk assessment and the development of methods to overcome them and strategies to optimize the balance between the profitability of financial-economic activity and the existing risks in order to optimize the profitability of enterprises [5; 6; 7].

Competitive risk management strategies can both reduce the likelihood of competition risk arising and reduce the potential for losses due to the actions of competitors or the adverse impact of the competitive environment (Table 1).

Thus, the proposed algorithm for the process of managing competitive risks will limit the number of risky situations in the enterprise, reduce risk

in general, reduce losses, and therefore will help to gain and maintain a sustainable competitive advantage for researched enterprise in the market.

**Table 1**

*Recommended competitive risk management strategies*

<b>Risk level</b>	<b>Strategy</b>	<b>Content of the strategy</b>	<b>The direction of strategy implementation</b>
High level of risk	Diversification	Diversification of economic activities types	Wholesale of goods, provision of intermediary, consulting, marketing services, commission trade
		Diversification of suppliers of goods	Involvement of a large number of suppliers in the purchase of similar products
		Investment diversification	Purchase of shares, other corporate securities, purchase of securities in banks or other financial institutions
	External insurance	Property risk insurance	Insurance of risks arising from force majeure (sharp fluctuations in exchange rates, inflation)
		Insurance risks related to liability	Insurance of risks arising from non-fulfillment of obligations by suppliers and marketing intermediaries

Management of competitive assets imply: consideration of competitive interaction evolution; selection of an alternative to search for exclusive competitiveness, determination of directions to achieve sustainable competitive advantages. It is determined that it is riskless enough to introduce a modified product to the market, it is reasonable to determine the possibilities of obtaining long-term competitive advantages.

The ability to maintain competitively advantages depend on a number of factors:

- sources of competitive advantage. Types of competitive advantages: set of strategic skills (technological superiority, quality of customer service); set of strategic assets (production of quality products, brand prestige, highly qualified personnel); advantages of high rank (high image, developed marketing, modern management) - lasting longer and allow high profitability; advantages of low rank (cheap labor, availability of raw material sources, not so sustainable because they can be copied by competitors).

- the obviousness of competitive advantage. If there are clear sources of advantage, there is an increased likelihood that competitors will try to deprive the firm of these advantages.

- speed of innovation. In order to maintain a leading position, the period of innovation implementation must surpass or be equal to the term of possible repetition of innovations by competitors.

- the ability to relinquish an existing competitive advantage in order to acquire a new one. Giving up competitive advantage is important for the implementation of the strategy because it creates barriers for imitators. For example, a firm has abandoned a cheaper plastic bottle in favor of a glass bottle, thereby creating barriers for imitators.

Competitive advantage must be: meaningful in terms of competitive conditions and meet the key success factors; sustainable in an unstable market environment and unavailable for replication by competitors. The following system of indicators is used to determine competitive advantages, reflecting strengths and weaknesses in a firm's competitive position. The main attributes of 'competitive strength' include: the degree of product uniqueness; market leadership; a high degree of product differentiation; innovative benefits; flexible management.

Signs of 'competitive weakness' include: slower than average revenue growth; falling reputation in customer community; relatively high costs; low market power; an inability to withstand takeover threats. Determination of strategic directions to achieve sustainably competitive advantages are based on the principles of strategic marketing management of competitiveness: maintaining competitive advantage requires a global approach to strategies - an enterprise cannot maintain competitively advantage without expanding it through the development of a portfolio of competitive marketing strategies; the basis for achieving competitive advantage is strategic marketing management of innovation, implementing certain improvements, innovations and changes; competitive advantage turns the value creation system, i.e. the whole set of activities involved in the process of creating a product and its use, covers the value chain of the enterprise, suppliers, intermediaries, consumers, a close and continuous exchange with whom is an integral part of creating and maintaining the advantage; exceeding regulatory barriers and standards in order to improve the quality of life of consumers; treating the personnel as a critical strategic resource of enterprises; highlighting as a priority the strongest competitors as a model for comparison, a source of new knowledge and strategic motivation, an incentive to improve. In order to develop an action program for creating a long-term competitive advantage for the enterprise, it is advisable to use the matrix of competitive advantage acquisition (Fig. 1), which poses certain questions to each of the four positions of using competitive assets and key competencies, and also takes into account the ambition of the enterprise plans to win competitive advantages.

It is determined that the competitive advantage of the modified product is new and new competitive assets and key competencies are needed. According to the long-term competitive advantage matrix, competitive megacapabilities are characteristic for the enterprise, where strategic foresight

allows enterprises to identify new competitive advantages to be realized in the future, and to find new competitive assets and key competencies that will contribute to the creation of these advantages.

		<i>Competitive advantage</i>	
		New	Existing
<i>Competitive assets and key competencies</i>	New	Competitive mega opportunities	Unoccupied competitive spaces
	Existing	Filling competitive gaps	Competitive inertia

Fig. 1. Matrix for the acquisition of long-term competitive advantage

If we look at the competitive advantages in the long term it is recommended for the enterprise to: create a marketing board, to develop the marketing component in the enterprise and to achieve an increase in the efficiency of the enterprise; open a zero level of selling of product: the service shop will ensure a high image of the enterprise, rating, allow the use of marketing policy to the fullest extent; vertical integration with suppliers to reduce costs, prevent defect, optimize of the work process, increase of own financial, resource, material, personnel, information and other resources; to conduct the active competition. The competitiveness management control system covers a subsystem of analytical-control work and a subsystem of implementation of corrective actions. The developed matrix of possibilities of results of the introduction of complex competitiveness management system into the practice of activity of the enterprise (table. 2) testifies that only in condition of functioning of all components of the value chain of competitiveness management "strategic dynamic vision - planning of competitiveness management - organization and motivation of competitiveness management - competitive advantages control competitiveness management" possible implementation of the desired changes in the competitive position of enterprises. Matrix of possible outcomes of implementing a comprehensive competitiveness management system. If the enterprise lacks the first link, a strategic dynamic vision, there is a conflict of vision and opportunism. The lack of a competitiveness management planning mechanism leads to false starts and disorientation of the enterprise. Unsatisfactory organization and motivation of competitiveness management is a consequence of uncertainty and dissatisfaction.

Ineffective competitive advantage management can lead to strategic frustration and apathy in a company. Ineffective control of competitiveness management can lead to dissonance in companies, a lack of feedback. Thus, a comprehensive competitiveness management system deserves priority

attention when solution the long-term existence and future development of an enterprise in the complex dynamic conditions of economic transformation.

**Table 2**

*Matrix of possible results of implementation of a comprehensive competitiveness management system*

Strategic dynamic vision	Competitiveness management planning	Organization and motivation of competitive management	Management of competitive advantages	Competitiveness management control	Desirable changes in the competitive position of the enterprise
no	Competitiveness management planning	Organization and motivation of competitive management	Management of competitive advantages	Competitiveness management control	Conflict of vision and opportunism
Strategic dynamic vision	no	Organization and motivation of competitive management	Management of competitive advantages	Competitiveness management control	False start, disorientation
Strategic dynamic vision	Competitiveness management planning	no	Management of competitive advantages	Competitiveness management control	Uncertainty and dissatisfaction
Strategic dynamic vision	Competitiveness management planning	Organization and motivation of competitive management	no	Competitiveness management control	Frustration and apathy
Strategic dynamic vision	Competitiveness management planning	Organization and motivation of competitive management	Management of competitive advantages	no	Dissonance, lack of feedback

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## **COMPETITIVENESS MANAGEMENT THROUGH CORPORATE TIME MANAGEMENT, PREVENTIVE INFORMATION AND LEGAL SUPPORT AND PREVENTION OF STRATEGIC RESOURCE ALLOCATION RISKS**

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A recent study by The Boston Consulting Group and World Skills found that almost 4 million Ukrainians are in a «qualification pit». That is, one in four employees is "out of place" in a job for which they are insufficiently

qualified (or overqualified). The problem is global: more than a third of the world's professionals (36 percent) hold positions that do not match their qualifications.

Obviously, it is not only the employees who suffer but also the employers: 27% claim that applicants do not have the necessary professional and communication skills. Moreover, the global economy's losses from this mismatch are already estimated at \$5 trillion a year (data from the Organization for Economic Co-operation and Development). According to the forecasts of The Boston Consulting Group, by 2030 they will increase to \$6 trillion a year [5, 6]. At the same time, companies are not striving to change their recruitment strategy, each time trying to find a candidate who perfectly fits the requirements. This trend is particularly detrimental to the quality of recruitment of mass personnel (drivers, salespeople, cashiers, waiters, couriers, security guards, loaders and other specialists). The recruitment process can be significantly accelerated and its quality improved by taking a broader view and hiring employees based not on existing competencies but on the potential capabilities of the candidates, which makes the topic of the research relevant.

Among the main reasons for the increasing losses that the global economy facing as the «qualification pit» sucks in more and more talent, experts from The Boston Consulting Group highlight the lag between skills renewal from the speed of technology development and the shortage of talent. This put two challenges for businesses: implementation is in step with the times of staff training programs and keeping of the best professionals.

The latter is particularly relevant considering that members of the mass professions are highly mobile, that is, they tendentious to change jobs frequently. Almost one in three (32%) did so at least once in 2018, while 4% changed jobs four or more times. And very often people are pushed to do so by a lack of opportunities for growth [3; 8].

Another argument in favor of training of employees within the company is the inability to acquire some of the skills needed for the job on their own. Josh Davies, head of the Centre for the Development of Work Ethics in Denver, predicts that more than 40% of new jobs will be in the "middle skills" segment by the end of the current decade, i.e. requiring more competencies than a high school graduate, but fewer than university graduates [1; 9]. At the same time, almost every third representative of a mass profession (29%) has declared his or her desire to obtain a specialty that is not related to the one in which he or she currently works, every fourth (23%) would like to deepen his or her professional skills, and every tenth (11%) would like to obtain additional skills in related industries. This indicates that there is a demand for training from the part of employees and employers need to satisfy it [2; 4; 10].

According to Thomas Kachan, professor at the Massachusetts Institute of Technology, in the current environment employers should treat employees as an asset to be managed rather than a cost to be controlled [7]. Thus, the implementation and application of a training program in a company requires some costs, but it is a serious contribution to increasing the productivity, involvement and loyalty of the staff. And all of these metrics directly correlate with business profitability.

Also, the fact that a company invests in staff training is an indication to potential employees that it is possible to grow and develop in the company. Moreover, this is one of the needs of the mass professions representatives, for the satisfaction of which they are ready to change jobs (in 52% of cases the reason for this step is the lack of opportunities for growth in the current place of work). In fact, training programs strengthen the HR-brand of a company, making it more attractive and reliable for an ordinary candidate. And strong employer brand is especially important for companies that have branches across the country and face the problem of seasonal hiring [10]. Deloitte Access Economics predicts that up to 2030, two-thirds of jobs in one way or another will be tied to soft skills (in comparison to half in 2000). Their importance is increasing as technology develops. More and more processes can be automated, and in these conditions, "soft skills" come to the fore: responsibility, discipline, emotional intelligence, the ability to communicate with others, the desire to achieve goals and others [8].

That employee who has the "flexible skills know how to work in a team, listen and hear people around he. Mass professions are mostly about communicating with people, so this is especially relevant for their representatives. This is why when hiring such employees you should focus on their personal qualities rather than on their "crusts" and work experience. Teach a person to use a POS terminal is much easier than teaching him how to communicate. For the same reason, you should not ignore pre-retirement candidates with extensive experience in any field. Recruiters often label them as "too good". But on the one hand, they are usually ready and willing to learn, and on the other hand, they are good candidates for promotion because of their education and experience (e.g. they make excellent deputy of managers) [5]. Launching a training program today is an investment that will pay off tomorrow. In a world where artificial intelligence has already begun to displace people from their jobs, the latter must continually learn to remain in demand as professionals. And a company that provides such an opportunity will always be one step ahead of the competitors.

The training of personnel capable to work productively in a business environment, their rational deployment in structure and space and an effective management culture depend on the quality of human resources management and are therefore key to the organization's success. No company can set

up an effective production, marketing, finance, sales or accounting systems without a motivated and skilled workforce. Human resource management takes on a special significance in the face of global competition and rapid scientific advances, during which technology, products, operational methods and organizational structures are rapidly becoming obsolete and employee knowledge and skills are becoming the main source of sustainable prosperity in a competitive business environment. In this situation, it is necessary to regularly monitor the condition of the workforce, which is realized through the organization of a comprehensive system of personnel assessment of the organization. An appraisal process is a systematic approach to summarizing and evaluating all the information that has been obtained from testing and using it to make decisions about the further carrier or employment of workers.

The activity of staff is under the close attention of managers. Based on their own observations and information about the performed work, each manager does conclusions during the work process that characterize the actions of the subordinate. In essence, this is an evaluation. But, in the system of personnel management in the business environment, a special role is assigned to appraising the work results and effectiveness of staff work. Evaluation is built from carefully organized procedures, implementation of which allows you to collect and accumulate information about the results of work, business characteristics of workers, to find reserves to improve effectiveness, make informed management decisions. When implementing the evaluation procedures, not only of the professional parameters of the work requirements but also some features of individual behavior which influence on the results of work, as an example, observance of principles, norms and rules established in the organization, are revealed.

The process of appraising an organization's personnel consists of the following steps:

1. Define the strategy and objectives of the organization. Conduct a survey of owners, top managers to formulate the strategy, benefits, key activities indicators and factors of success of the organization.

2. Formulation of the personnel's main tasks arising from the organization's strategy. To formulate the requirements for the filling of contents of the set of competencies of specialists; to understand how specialists should behave in a team; to determine what a concrete specialist can do for other team members and the company as a whole within the framework of the responsibilities, he/she will have or already has in place.

3. Development of a scientific and methodological approach to personnel assessment. Formation of a competence system: using a readymade model or creating a new system. It is possible to involve external consultants or develop competencies yourself.

4. Establishment of the data system required for the assessment. The necessary information may include: list of specialists, list of personal competencies, list of job salaries, list of experts, score system, evaluation letters.

5. The development of a rating scale for each level of competence. The scale is created to describe unacceptable (unacceptable behavior for the organization), acceptable (minimum acceptable requirements) and outstanding (the best behavior) levels of employee behavior in the workplace.

6. Definition of a model (profile) of an employee's competence the ideal model for assessing the competence of an employee's professional level is noted.

7. Modelling real salary based on competencies. Formation of a mathematical model of an employee's real salary based on competence analysis, testing of the model, analysis of the obtained results.

8. Application of the developed methodological approach. Introduction of the methodology into the organization activity ensures a link between the personal abilities, qualities and behaviors of the employee and the tasks that are assigned to him or her.

Personnel appraisals provide information about the potential abilities and growth potential of personnel, the effectiveness of employee's work, causes of inefficiency of individual workers, ways to improve work organization, the needs and priorities for training and professional development. However, managers can make mistakes when organizing and conducting assessments. That is, assessments may be undertaken without a clear understanding of their goals and objectives. The result is the development of a program that will be ineffective. Errors can occur in both the organization and the evaluation phases.

An essential requirement is the effectiveness of the appraisal system. Validity is achieved when there is a clear link between results of work and pay, a high level of motivation and maximum output from employees. A second requirement is that the appraisal system must be used practically. The condition of practicality is achieved when the appraisal system becomes easy to use in practice both for the people who carry out the appraisal and for those who are appraised. The process of implementing an assessment system will be difficult if the assessment methods are complex and the assessment indicators are questionable.

The organization of a comprehensive system of personnel assessment of the organization in a competitive business environment has been defined. It is proved, that preparation of the personnel capable to work productively in the business environment, it is rational placing in structure and space, an effective culture of management depends on quality work of HR service and accordingly is a guarantee of the organization's success. Systematized

data sources, data collection methods, procedures for assessing an organization's personnel and levels of assessment of the organization's personnel. Generalized practices of errors in the staff appraisal process of an organization and their consequences.

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**INNOVATIVE PROJECT MANAGEMENT IN THE  
CONTEXT OF CHANGING CONSUMER PREFERENCES,  
DECENTRALIZATION, SUSTAINABLE DEVELOPMENT AND  
SOCIAL PARTNERSHIPS**

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The project management system is one of the most important processes of an organization's activity and its effectiveness determines the final result and success of the organization. In order to improve the existing project management process of organizations we propose to implement the following measures:

Introducing the principles of social entrepreneurship into project activities. At first glance, it may seem that the communal organization does not have the capacity to conduct business. However, under Ukrainian law, its non-profit status does not at all prevent it from carrying out entrepreneurial activities. How does it work in practice? The organization is exempt from income tax, and the income it receives is used for its operational activities and the realization of its social purpose. This approach is a type of social entrepreneurship. The greatest benefit of this method is the ability to achieve financial stability and sustainability, namely by reducing dependency on grantors and donor requirements. It can be a solution to overcome the problems of finding funding and not being able to implement all the available ideas due to lack of funds. In our view, this approach will provide

the organization an alternative source of funding and enable it to achieve its social mission more quickly and effectively [2; 9; 10].

Introduction of social enterprise principles into the work of the organizations that we propose also implies the development of a business mindset among employees and the introduction of a set of tools that have proven to be effective among entrepreneurs in practice. At the same time, the communal organization, having identified its main goals, objectives and needs, must search for a balance between two components: business practices and those that are accepted in the non-profit sector. However, even having multiple sources of funding does not guarantee the successful realization of projects. Many of the organization's planned ideas are not implemented; they are rejected due to a lack of specificity about the objectives, consequences, results and benefits of the project. Communal organization is mainly focused on getting quick results, whereas considering today's global trends, timeliness and permanence should be taken into account. This is why we propose to introduce sustainability assessment tools for programs and projects of enterprises based on the following components (Fig. 1). Consider the proposed evaluation principle on the example of the stakeholder support criterion (Table 1-8). It is advisable to carry out the assessment according to the following principle: answer as many questions as possible. If it is difficult to give an answer or the question is not relevant for the project, please indicate "no answer" (NA). For each item, it is necessary to circle a number that indicates the level of relevance of the project to a particular factor [3; 6].

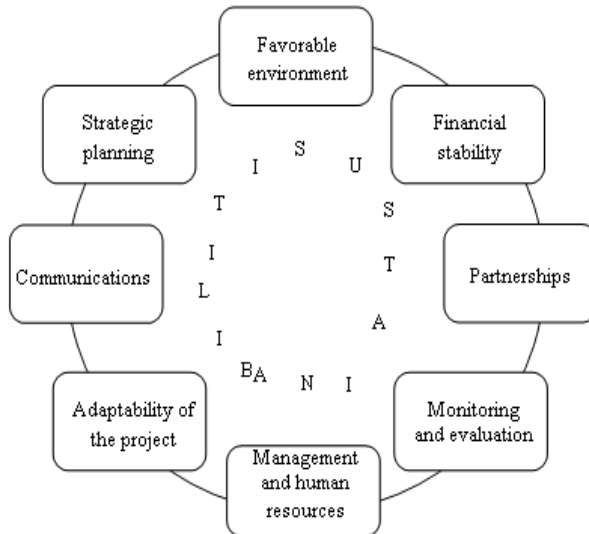


Fig. 1. Constituents of innovation project sustainability

**Table 1***Sustainability assessment tool for stakeholder support*

Question	No, or in insignificant amounts				Yes, or to a large extent			Difficult to answer
	1	2	3	4	5	6	7	
1. There are community / stakeholder representatives who provide significant project support.	1	2	3	4	5	6	7	NA
2. The project involved community / stakeholder representatives who are able to raise resources.	1	2	3	4	5	6	7	NA
3. The project is supported by management of organization.	1	2	3	4	5	6	7	NA
4. The project is supported by decision makers from outside the organization.	1	2	3	4	5	6	7	NA
5. The project has strong public support.	1	2	3	4	5	6	7	NA

**Table2***Tool for assessing the sustainability of a project according to the "Financial sustainability" criterion*

Question	No, or in insignificant amounts				Yes, or to a large extent			Difficult to answer
	1	2	3	4	5	6	7	
1. The project exists in a favorable state economic climate	1	2	3	4	5	6	7	NA
2. The project uses various mechanisms aimed at ensuring stable funding.	1	2	3	4	5	6	7	NA
3. The project is funded from various sources.	1	2	3	4	5	6	7	NA
4. The project combines stability and flexibility of funding	1	2	3	4	5	6	7	NA
5. The project has stable funding.	1	2	3	4	5	6	7	NA

**Table 3**

*Tool for assessing the level of sustainability of the project by the criterion "Partnership"*

Question	No, or in insignificant amounts				Yes, or to a large extent			Difficult to answer
	1	2	3	4	5	6	7	
1. Various organizations and communities are involved in achieving successful results by project.	1	2	3	4	5	6	7	NA
2. Project maintains information links with community leaders.	1	2	3	4	5	6	7	NA
3. Community leaders are involved in the project realization.	1	2	3	4	5	6	7	NA
4. Community members support the project with great enthusiasm.	1	2	3	4	5	6	7	NA
5. The community is involved in defining the project objectives.	1	2	3	4	5	6	7	NA

**Table 4**

*Tool for assessing the level of sustainability of the project by the criterion "Management and Human Resources"*

Question	No				Yes, or to a large extent			Difficult to answer
	1	2	3	4	5	6	7	
1. Project is well integrated into the activities of organization.	1	2	3	4	5	6	7	NA
2. Existing organizational systems to support the various needs of the project.	1	2	3	4	5	6	7	NA
3. Management effectively communicates the project idea to external partners	1	2	3	4	5	6	7	NA
4. Management effectively manages personnel and other resources.	1	2	3	4	5	6	7	NA
5. The project has adequate human resources to achieve the project objectives	1	2	3	4	5	6	7	NA

**Table 5**

*Project sustainability assessment tool according to the criterion  
"Monitoring and evaluation"*

Question	No				Yes, or to a large extent			Difficult to answer
	1	2	3	4	5	6	7	
1. The organization has potential for quality project evaluation.	1	2	3	4	5	6	7	NA
2. The organization shall report on the short-term and interim results of the project	1	2	3	4	5	6	7	NA
3. The results of monitoring and evaluation are used in planning and realization of the project	1	2	3	4	5	6	7	NA
4. The results of the project evaluation are used to demonstrate the achievements to sponsors and other key stakeholders.	1	2	3	4	5	6	7	NA
5. The project provides the public with convincing evidence that it is effective and efficient.	1	2	3	4	5	6	7	NA

**Table 6**

*Tool for assessing the level of project sustainability according to the criterion "Project adaptability"*

Question	No				Yes, or to a large extent			Difficult to answer
	1	2	3	4	5	6	7	
1. The evidence base of the project is constantly updated	1	2	3	4	5	6	7	NA
2. The organization shall adapt the strategic directions of the project if necessary	1	2	3	4	5	6	7	NA
3. The organization adapts the project in accordance with the scientific progress.	1	2	3	4	5	6	7	NA
4. The organization shall adopt the project to changes in the external environment during its implementation.	1	2	3	4	5	6	7	NA
5. The organization shall decide which components are ineffective and should be discontinued.	1	2	3	4	5	6	7	NA

**Table 7**

*Tool for assessing the level of sustainability of the project by the criterion of "Communication"*

Question	No				Yes, or to a large extent			Difficult to answer
	1	2	3	4	5	6	7	
1. The organization has communication strategies to engage and implementation public support for the project.	1	2	3	4	5	6	7	NA
2. Personnel involved in the implementation of the project shall inform the public about its importance.	1	2	3	4	5	6	7	NA
3. The project is promoted in such a way that the project arouses public interest.	1	2	3	4	5	6	7	NA
4. The project increases public awareness about the issues it addresses	1	2	3	4	5	6	7	NA
5. The project demonstrates to the public its importance for society.	1	2	3	4	5	6	7	NA

**Table 8**

*Tool for assessing the level of sustainability of the project according to the criterion "Strategic planning"*

Question	No, or in insignificant amounts				Yes, or to a large extent			Difficult to answer
	1	2	3	4	5	6	7	
1. The organization analyzes the project's resource needs.	1	2	3	4	5	6	7	NA
2. The project has a long-term financial plan.	1	2	3	4	5	6	7	NA
3. The project has a plan for future sustainability.	1	2	3	4	5	6	7	NA
4. The objectives of the project are clear to all stakeholders.	1	2	3	4	5	6	7	NA
5. The project clearly outlines the roles and responsibilities of stakeholders.	1	2	3	4	5	6	7	NA

The evaluation according to the other seven criteria is based on the same principle.

As a result of the analysis of these factors, an evaluation table is compiled, which includes the following indicators: total for all questions; average evaluation of the area; and overall evaluation.

The consolidated results will help to form an average assessment of the sustainability of the project. A low (1 to 3) or medium (3 to 5) score indicates that in this area the potential of the planned project requires additional efforts to ensure sustainability [1, 4].

The final stage of the assessment is to develop a concrete action plan to ensure the sustainability of the project, which will include:

- Priority sphere;
- Indicator(s) that need improvement;
- The next steps to be implemented (specifying terms for the implementation of each step and The responsible person);
- The authorities, organizations or person to be involved;
- The resources needed and how to mobilize them;
- Ways of tracking achievement and determining of their success (monitoring system).

It is also important to note that the project management process depends on an external environment that is volatile, uncertain, complex and ambiguous. The impact of the COVID-19 pandemic has tested the ability of global organizations to carry out projects and programs effectively. Rapid and effective adaptation to the new environment is a clear priority over delay or cancellation [5, 7, 8]. Ways of adapting to today's challenges vary, but we can identify four suggested steps for a not-for-profit organization to respond to them:

Stage 1. Reaction. A quick and large-scale transition to telecommuting; failures in flow programmes; a change in the way projects are managed.

Stage 2. Stability. Applying to remote or disturbed operating conditions; e-evaluation of the main business cases.

Stage 3. Reconstruction. Creation of methods and tools that allow for the stable implementation of the agreed programme

Stage 4. New reality. Change the catena of ways of working forever; adaptation to the new project implementation approach.

In order to adapt project management processes in response to the COVID-19 crisis, we offer organizations to adhere to the following aspects:

1. Optimize rather than cancel projects. Transformations need to be implemented that will allow you to move to new operating environments.

2. Remote management. Apply flexible management styles combined with necessary adaptations within the team and the use of collaborative tools to achieve successful results.

3. Disciplined agility. Find a balance between having a flexible outlook on project activities and establishing the certainty provided by clearly documented project plans and control documents.

Sometimes an organization does not use any formal, structured.

Methodology to define its strategies and build its project portfolio. There is an informal dynamic in which proposed projects and the history of projects already completed are evaluated, but in our view, this practice needs to change. Based on the research and analysis of existing project management methodology we propose a developed conceptual project management model adapted to the specific context.

The framework of the model is the Project Excellence Model, into which has been integrated a modified and reinterpreted GPM Global P5 Standard. Modification of the GPM Global P5 Standard means that indicators that can be applied to projects have been introduced into the model without any changes, indicators formulated general in generally way have been specified and linked to the project. In addition, new indicators have been created to cover all areas of project sustainability, innovation and creativity.

The seven dimensions that make up the model consist of project management elements and guidelines, specific characteristics of the activity sector, and the environmental, and cultural context of the communal organization. By taking it statute as a guiding base for project portfolio management, the model can facilitate both the implementation and the identification of further strategies. The proposed model can also be used as a driving force for project management practices as well as for the deployment of strategic actions, missions, visions and goals. In the developed model takes into account project types, fundraising regimes, compliance with technical standards and adaptation to change.

Nevertheless, integrating the concept of sustainability into project management leads to expanded boundaries for new projects, not only in terms of the life cycle, but also in terms of stakeholder relations and organizational learning.

Project outcomes have their impact (direct or indirect; in the short or long term) on a multitude of stakeholders, which are divided into the following macroblocks: organization (project sponsor, shareholders), individuals (project team leader and members), client (consumer and end-user) and global society (local and global communities). Each macro-block takes into account the involvement or influence of stakeholders and project outcomes, i.e. positive or negative effects for which project can be considered successful in terms of sustainability.

Thus, only the continuous improvement and universalization of project management competencies and acquisition of flexibility in adapting to complex conditions will enhance the competitiveness of the organization.

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# SAFE EDUCATIONAL ENVIRONMENT AS THE BASIC CONDITION FOR PRESERVING INDIVIDUAL'S MENTAL HEALTH

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Educational reform in Ukraine involves updating and modernizing all components of the system to improve its quality. Its main idea is to ensure the rights, freedoms, and interests of young people. Responsibility for the results of educational activities is on a teacher, student, and educational environment, as they are integral components of the learning process. The realization of modern education goals depends on the creation of such an educational environment in which young people are an active subject of activity, where the needs of their personal development are met. Consequently, the problematic issues of the educational space and the organization of its security become extremely important. In recent years researchers have become increasingly interested in the safe educational environment issues.

Systemic analysis of the concept of educational environment occupies one of the prominent places in modern pedagogical science. Educational environment has been extensively studied by the Ukrainian and foreign scholars (H. Ball, I. Bekh, Ye. Bondarevska, D. Gibbon, N. Hontarovska, Ye. Korovin, S. Maksymova, B. Mau, A. Mezhuiev, O. Piekhota, K. Prykhodchenko, V. Rybalka, S. Roshchina, V. Rubtsiv, V. Semychenko, V. Sierikov, S. Sysoieva, M. Turvei, Ya. Fruktova, A. Tsymbalaru, T. Tsiuman V. Yasvin and others). In their works, A. Kolupaieva, L. Koval, S. Myronova, T. Sofii, Z. Shevtsiv highlight the issues of the inclusive environment specificity in the educational institution.

Modern educational space is flexible and creates opportunities for various activities, evokes joy, stimulates imagination, and motivates learning. The most prominent qualities of modern educational space are: integrity, unity, and orderliness of the subject-spatial environment and visual perception; versatility, flexibility, and mobility; age compliance; personalization,

availability of personal space; freedom, the openness of perception, creativity; practicality and ergonomics; harmony and balance; socialization and cooperation [4, p. 17].

Ukrainian and foreign scholars and practitioners interpret the educational environment as a part of the vital social environment of a human, which manifests itself in the totality of all educational factors that directly or indirectly affect the individual in the process of learning, and is a friendly educational space in which personality can develop and function.

The educational environment is considered as a defining factor in the development of personality, a set of natural, physical, and social objects and subjects that affect the formation of the learner as a personality and influence his creative and professional development, contribute to the formation of inter-subjective interactions and personality-oriented communications, provide comfortable learning conditions within the educational institution and beyond [3, p. 18].

Modern approaches to the organization of the educational environment require humane treatment and respect for the rights and freedoms of each individual, regardless of its physical and psychological characteristics. "If a child has special needs, he/she enters the educational environment on his/her own terms: not the child adapts to the environment, but the environment must be adapted to the child" [5, p. 48].

One of the most burning tasks of the educational system modernization is creating an inclusive educational environment. The scholars define it as "a set of special conditions created for the co-education of children with special educational needs and children with normative development. They study together in the same class, taking into account the logistical, educational, informational, staffing, unimpeded access to education, and relocation in it. It will promote effective socialization, education, upbringing, development, correction, and rehabilitation of students with disabilities and will not interfere with the education of other children"[10, p. 11].

The educational environment is a subsystem of the socio-cultural environment and is regarded as a set of specially-created psychological and pedagogical conditions which can facilitate the formation and development of personality. It comprises psychological and pedagogical reality, purposely created conditions for the formation of personality, opportunities for its development in the social and spatial-subject environment; a totality of personal characteristics and features of the participants' interaction; the education content based on the unity of the subject learning material and the methods of mastering it [1].

Assessing the educational environment as a systemic tool for shaping the personality, V. Yasvin suggests considering the following components of the system: spatial-subject (spatial-subject conditions and opportunities for

training, education, and socialization of the individual); social (conditions and opportunities, created for interpersonal interaction between the subjects of the educational process); psychological and didactic (educational technologies (content organization and methods of teaching and learning), built on the appropriate psychological and didactic principles) [12, p.11-15].

The majority of the educators agree that the educational space is a complex organized system, which provides grounds not only for educational problems solution but also creates conditions for the socialization and mental development of children. The psychological state of the educational environment reflects the quality of its participants' relationships, and the content of these relationships, in turn, determines the quality of the whole system space.

Along with this, many researchers point out that the issue of security in various human activity spheres is much broader, and therefore remains relevant and needs further study.

V. Pylypenko and N. Chesnokov contributed significantly to the study of the education environment safety issues, offering their models on how to develop this safety system. L.Gayazova studied the issues of complex security of the educational institution. S.Petrov investigated the safety of the educational environment on the whole, O.Obozov – the safety of the school educational environment, L.Sydorova – the educational environment safety of the pedagogical college, etc.

In her studies of the educational environment of the pedagogical college, L.Sydorova specifies the concept of safety as an environment for forecasting, identifying, managing, and eliminating hazards and risks at various levels that may have a destructive effect on the quality of education [8].

I. Baieva, T. Kabachenko, T. Krasnianska, O. Lebediev, N. Lyz', N. Rassokha, L. Rehush, V. Semykin, S. Smolian, and others analyze the phenomenon of the psychological safety of the educational environment.

L. Gayazova analyzes the safety of the educational institution environment through the assessment of socio-psychological, pedagogical, informational, legal, medical, as well as material and technical aspects of its security [2].

S. Petrov considers the educational environment safety as a state of its organizational, spatial, and social facilities, which in addition to ensuring the life safety and health of educational process subjects, is a necessary condition for these subjects' personality development and provides legal, social, psychological, informational security of students, teachers, parents, etc. [6].

S. Tarasov believes that the educational environment requires a structure that comprises the following components: spatial-semantic (architectural and aesthetic organization of vital space, coat of arms, traditions, etc.); content-methodical (concepts of teaching and education, educational curricula, forms

and methods of teaching, etc.); communication-organizational (features of learning process subjects, communicative sphere, features of management culture) [9].

M. Neschadym, N. Nyzhnyk, G. Sytnyk, V. Bilous, in their scientific works, analyze the system of threats, dangers, and risks that under certain conditions may affect the level of the educational environment safety.

V. Yasvin examines the educational environment as an aspect of the educational institution's inner life with a focus on the system of influences and conditions of personality formation, a system of opportunities for its development that exist in the social and spatial-subject space of the institution.

In a rapidly changing modern world, the educational environment of the educational institution is not safe and protected from external and internal factors influence. These factors can be beneficial or such that carry some threats, dangers, and risks of destructive changes.

It is obvious that the educational environment must be protected and safe to combat negative changes. It requires the creation of mutual respect atmosphere and a responsive attitude to each other in interpersonal communication in the learning process.

To support this view, we refer to A. Maslow's theory of needs, which argues that the need for security comes next after meeting the physiological needs of food, water, sleep, etc.[13].

E. Fromm also supports the position that humane relations between people can best develop when there exist security and safety in society. Accordingly, we can argue that the concept of safety is closely related to the concept of security, and safe educational environment conditions are a prerequisite for the secure comprehensive development of personality.

The absence of a unified definition of the concept of "educational environment safety" is caused by the approach variety regarding its basic features interpretation. The analysis of risks and dangers of the educational environment safety involves the evaluation of the psychological, psychological-pedagogical, socio-pedagogical, environmental, informational, and other elements of this concept.

Researchers who study the issues related to the psychological safety of the educational environment assume that various traumatic situations directly or indirectly affect the physical and mental health of the individual. Thus, psycho-traumatic situations in the educational process of an educational institution include:

- conflicts in the teacher-student relationship, student-student relationship, student-parent relationship, etc .;
- the problem of adaptation in the educational environment;
- manifestations of rivalry between peers;

- unreasonable demands of teachers, etc.

Regarding the ecological aspect of the educational environment safety, the study of S. Sovgyra is of particular interest. He understands the ecologically safe educational environment as a system of psychological and pedagogical conditions, influences, and opportunities that protect the individual from the negative pressure of environmental factors and determine the optimal interaction with the natural world" [7, p. 3].

Scientists also highlight the issue of the pedagogical safety of the educational institution. The educators argue that the pedagogical safety of an educational institution is a system of pedagogical activities aimed at creating such a pedagogical environment when the actions of the administration and the entire teaching staff are organized so as not to endanger the mental and physical health of all its participants and provide opportunities for their safe individual development.

The informational component of the educational environment safety is also of great importance as it has a colossal and global impact on the individual via the use of information and communication technologies in education [11, p. 150]. The most significant among the negative impacts of information on the modern educational environment is the lack of proper mechanisms to control the quality of information available through modern telecommunication technologies. A powerful flow of diverse information provokes the uncontrolled penetration into the educational space of a large amount of unreliable information of dubious, aggressive content, which contributes to violence, bullying, cyber-bullying, etc.

The issues of psychological security of interaction within the educational space are extremely acute in modern society. Psychological security of the educational environment is "the situation, free from the manifestations of psychological violence in interaction, which helps to meet the needs of a person for truthful and sincere communication, create a reference value of the environment, and ensure its participants' mental health" [1, p. 21]. I. Baieva determines the index of psychological security of the educational environment, the integral indicator of which is protection from public humiliation, insults, ridicule, threats, abuse, abusive name-calling, contemptuous and hostile treatment, or from what makes you do a thing against your will.

According to researchers, the psychological safety of the participants in the educational environment means friendly and trustful relationships and protection from adverse influences. We can promote psychological safety by forecasting possible dangers to prevent them. Some scholars consider it in terms of the manifestations of violence in interpersonal interactions and interaction with the social environment in general.

The institutional audit aims at stimulating higher education institution

to become better and cultivate a culture of education quality based on transparency, innovation, and partnership of participants in the educational process. The audit has defined the integral elements of a safe educational environment: safe and comfortable working and learning conditions, absence of discrimination and violence, creation of inclusive space and motivational atmosphere.

The emotional component of educational safety significantly affects the learning outcomes and the formation of psychological security of the individual. Thus, people with disabilities, due to the peculiarities of their physical and mental development, are characterized by certain disorders in the emotional and volitional sphere, increased tension, emotional imbalance, neuroticism, anxiety, insecurity, low level of requirements. Accordingly, the weakened volitional mechanisms of this category of people cause states of confusion, apathy, alienation, irritation, which provoke additional socio-psychological barriers in communication with other participants in the educational process.

Feeling of inferiority, that occurs in persons with disabilities due to a lack of understanding of their problems, prevent them from enjoying the whole range of human life opportunities. As a result, young people develop qualities that discourage or impede their effective interaction with the social environment. A high level of personal anxiety can become a serious barrier for a person with permanent health problems in building up friendly relationships with their peers and teachers in the learning process and accepting the educational environment as safe.

Thus, a vitally important requirement for the educational process of a modern educational institution is creating an environment that is comfortable for every participant in the educational process and which is physically and psychologically safe. Therefore, all the above-mentioned approaches are fundamental for a new quality educational space organization, and their implementation can strongly improve the psychological climate of the learning process. A safe educational environment provides safe conditions for study and work, comfortable interpersonal interaction which contributes to the emotional well-being of students, teachers, and parents, ensures protection from any manifestations of violence and the sufficient resources to prevent them, guarantees the observance of the rights to and norms of physical, psychological, informational, and social security of each participant of the educational process.

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## **THE ESSENCE AND MEANING OF STRATEGIC HUMAN RESOURCES MANAGEMENT**

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The main objective of management is the establishment of all necessary conditions (organizational, technical, social, psychological etc.) to perform organization tasks as well as coordination of employees' activities in order to achieve certain planned results. It consists of such main components as work object (something that is to be influenced and processes), work equipment (something that is used to make influence) and process, i.e. goal-oriented activity and result [5, p. 27].

The most important element of productive forces and the main source for the economic development of both a country and every enterprise refers to people, their experience and professional training.

There are different studies concerning strategic human resources management and its practical application [1; 2; 4; 5; 8; 9]. It is determined that strategic management and conception of human resources management can make business more competitive, create additional values and form efficient management of an enterprise. The formation of strategic trends and improvement of intangible assets are considered to be the priorities in strategy development.

There are different definitions of the term “the strategy of human resources management”.

One of the most common is the definition of A. Kibanov who refers the strategy of human resources management to top-priority line of operations which are specially determined by top management and essential to achieve long-term objectives of creating highly qualified, responsible and cohesive team and take into account strategic tasks of an organization and its resources [8, p. 48].

It is necessary to agree with this statement since it focuses on the significance of the formation of an efficient organization structure which can provide the optimization of the efforts of an enterprise.

Efficient human resources management is based on the certain principles:

1) goal orientation – any management process is oriented to the

achievement of the specific business goals of an organization. If there are no well-defined goals, the work with the personnel will be much less efficient;

2) systematic approach – all actions concerning the personnel should be conceptually unified. The programs, procedures and practical instruments for human resources management used in various areas (or at various levels) should be the components of the unified system and should not contradict to each other;

3) scientific character – management subjects should use science-based methods in the process of human resources management [3].

The selection of the methods should meet a number of requirements. The application of the methods which are not science-based (e.g. psychological tests that are not scientifically valid enough) can result in time waste or in the worst case it can provoke serious conflicts or mistakes in an organization.

4) optimality – it means that in the process of human resources management (as well as in any other management area) it is not reasonable to achieve the result no matter the cost. It is necessary to strike the right balance between the result and the cost to achieve it;

5) subsequence of management process – this principle means that selected management procedures and methods, established rules and norms of relations in an organization should not contradict to each other, they should be unified to all employees and unchangeable unless there are well grounded reasons. The lack of logics and consequence of the applied actions, different standards used to the employees of the same professional group or unjustified changes in “game rules” in management misinform the personnel, drive a wedge to the team and decrease the ability of the personnel to be managed;

6) balance between authority and responsibility should be followed at all organization levels, from top management to every employee. According this principle, every employee should be responsible for operations or processes that are in his or her sphere of influence and control;

7) harmonizing personal, team and organization interests means that while achieving its goals an organization takes into account the interests, needs and goals of its employees and departments and does its best to avoid conflicts [6; 9].

Numerous approaches to determine the essence of human resources management are come from specific characteristics of this category.

Summarizing the research concerning the essence of human resources management [1-10], we refer this term to the process of preparation and provision of actions directed to achieve the goal stated by an organization. This process includes working out a complex of regulations which determine the place and role of every subdivision of management apparatus and every employee in the management system, the order of interrelations

between them, the norms of interrelations in the management apparatus, the forms of influence on management objects and types of contacts with the environment.

The term of strategic human resources management of an enterprise is based on the conceptual framework of strategic human resources management in general.

The main goals and ways of the implementation of strategic human resources management are presented on fig. 1.

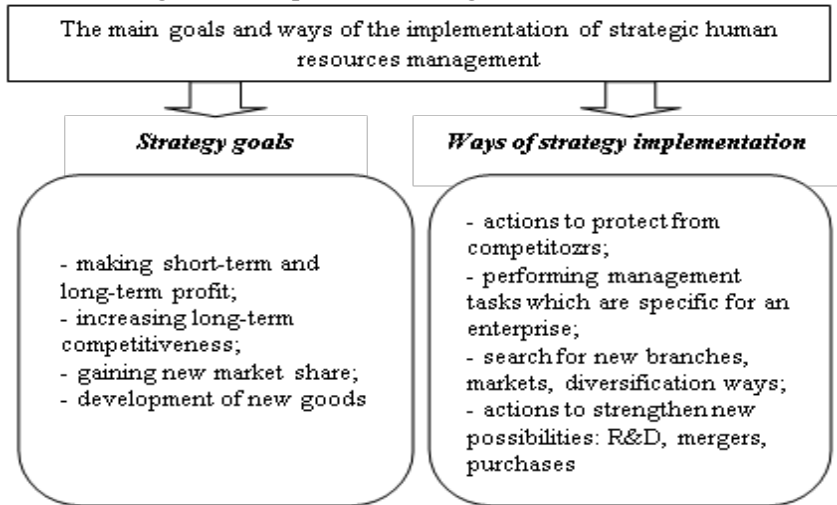


Fig. 1. The main goals and ways of the implementation of strategic human resources management [2]

Thus, the main features of strategic human resources management are the following:

- long-term character which can be explained by its direction to the development and change of psychological patterns, motivation, personnel structure, the whole management system or its specific elements;
- correspondence between the goals of strategic human resources management and the general strategy of enterprise development. They should be aimed at achieving the goals of economic development of an enterprise, rather than contradictory to;
- taking into account the effects of external and internal environmental factors of an enterprise on strategic human resources management, which may need to adjust general development strategy of an enterprise, and accordingly to changes the structure and number of personnel, their skills and qualifications, style and methods of human resources management [7].

The strategic approach to human resources management provides, first

of all, qualitative changes in the field of personnel work. These are that strategic aspects are becoming increasingly important in the traditional areas of personnel work. While combining with strategic technologies, personnel planning, hiring, evaluating, training are the components of the strategies of human resources management, that take on a new quality and a single focus on achieving strategic goals of enterprise development [4].

According to Armstrong M. there are three types of process of development and implementation of the strategies of human resources management strategies [2]:

- integrated process – that considers a strategy of human resource management as one of the functional strategies within a business strategy of an organization;
- compliance process – with this approach, the strategy of human resources management is developed in parallel with a business strategy. Parallel development of these strategies increases the probability of their interpenetration and obtaining a comprehensive result;
- isolated process – with this least common approach an independent action plan of human resources management is developed. It is formulated and compiled separately from a general business plan, simultaneously with it, or beforehand (then it acts as part of it), or upon completion (for comparison). The value of the strategy of human resources management depends on the adequacy of information related to business. This approach characterizes the concept of human resources as an area of interest for human resources professionals dealing exclusively with human resources issues.

Differences in traditional human resources management are in all elements of the human resources management system of an enterprise – from the involvement of personnel to the functions of human resources services of an enterprise.

Strategic human resources management of an enterprise is formed with the strategic goals of development, the peculiarities of environmental factors and trends in the labor market, the possibilities of resourcing of personnel activities. The goals of human resources management, in turn, affect the implementation of the human resources strategy of an enterprise (Fig. 2).

The importance of strategic human resources management is determined by four factors:

1. Use of planning.
2. A holistic approach to the development of human resources management systems and their management on the basis of labor relations policy and human resources strategy, based, as a rule, on the «philosophy» of a company.
3. Coordination of activities and directions of human resources management policy with the adopted business strategy.

4. Attitude to company's employees as a «strategic resource» to achieve a «competitive advantage».

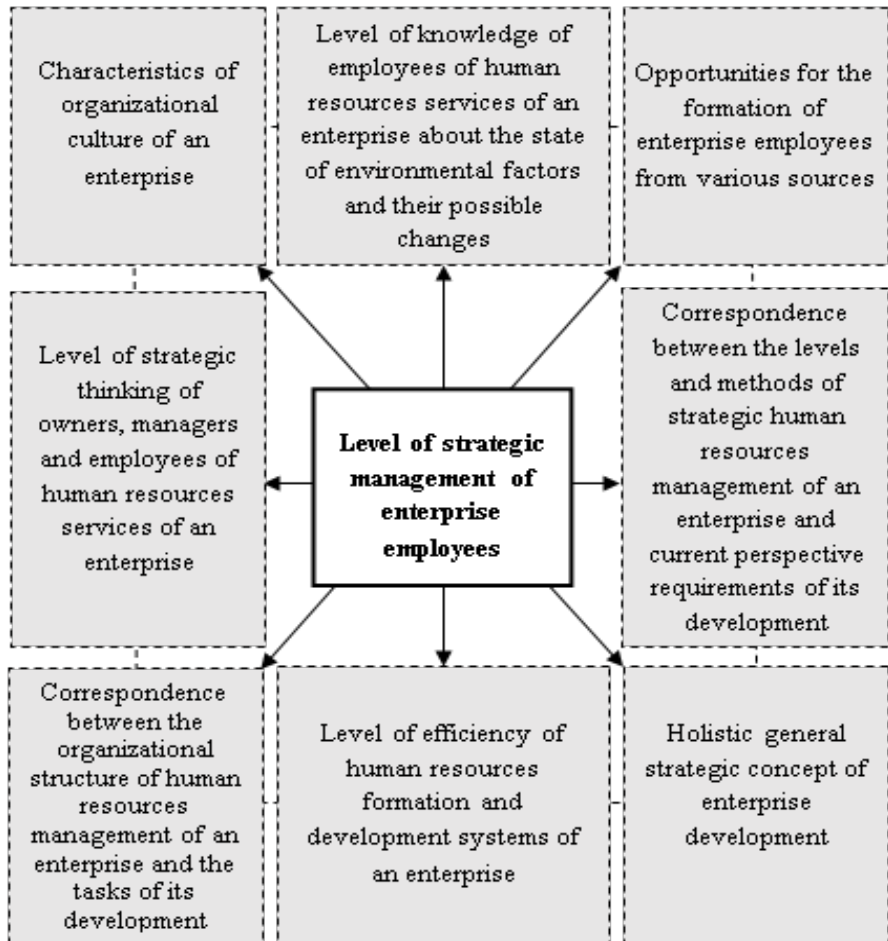


Fig. 2. The system of basic elements that form the level of strategic human resources management of an enterprise [2]

The analysis allows specifying the main approaches to determining the management strategy of enterprise employees:

- the universal approach based on the fact that the areas of human resources management policy and practices of human resources management inevitably lead to high quality work, regardless of the specific strategy, that is, development of the most effective personnel areas;
- the approach of probability, or correspondence is that different

enterprises must have different policies and practices of human resources management depending on the general strategy and the external environment in which the enterprise operates, determines the relationships between the general and human resources strategy;

- the approach based on available resources;
- functional strategies;
- the approach is based on available or necessary human resources that form the strategy of human resources management, according to which it is a central independent functional strategy;
- the approach to the formation of the strategy of human resources management, which involves the coordination of the general strategy of an enterprise with the available and necessary human resources.

Today, every business entity, considering the current situation for the future, must pay attention to the needs and values of human capital internally, because human capital is the main driving force for a successful business entity in market economy and in the processes of globalization as well.

In our opinion, if a manager thinks effectively, has a strategic vision, is not afraid of changes and responds to the problems of each member of the workforce, as the main component of an enterprise, the business works and develops. In this case, the strategic development of an organization and human resources comes to the foreground. The strategy of human resources management is a subsystem of the organization's strategy, presented in the form of a long-term program of specific actions to implement the concept of using and developing the potential of an enterprise in order to ensure its strategic competitive advantage.

Thus, directions for further research should be aimed at studying the relationships between kinds and types of enterprise strategies and the strategies of human resources management, namely the determination of criteria for the classification of strategies of human resources management of an enterprise.

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## HIGHER EDUCATION: A COMMODITY OR A PUBLIC GOOD

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Traditionally, education has long been seen as a public good, creating a set of external effects that provide a benefit not just for the students but also for society as a whole.

However, in recent years, the development of international legislation on trade in services has called into question the well-established idea that higher education is a public good. The idea of the need to legitimize the sale

and purchase of education as a commodity intended for trade is increasingly spreading [1, p. 450].

The emergence of the international trade in educational services and globalization processes have only given credence to the idea that education is a commodity. This found its expression mostly in Eastern Europe, as well as in most English-speaking countries, the Organization for Economic Cooperation and Development (OECD) and China [2, p. 131].

Higher education is subjected to the significant impact of both national and international trade, their interests being represented in the World Trade Organization (WTO) and the General Agreement on Trade in Services (GATS), the institutions established beyond the United Nations system. This has led to higher education being seen as a private commodity influenced by national and international markets [1, p. 450].

Studies have been conducted to provide an answer to the question whether higher education is a product or a public good. They showed that there are at least four reasons for discrepancies in public / private distinctions in higher education and in other fields.

First, the public / private categorical apparatus is widely used in the activity areas (public and external sectors), financing sources (state, household or private enterprise), and the nature of the activity itself. Since the central focus of the study is higher education, one should distinguish between social / private in terms of the social nature of learning activities, and the understanding of the "public" - as the public sector.

Secondly, the difference between public / private in different countries of the world is different depending on political culture. There are different views and practices of the "public/social", "private", "society" and "state" in the Nordic countries, in the German ordoliberalism, Anglo-American society and Chinese civilization tradition with its strong family structure. The public / private balance of expenditure is very different in national systems that are often similar in other respects, and it reflects a variety of assumptions about the contribution and responsibilities of the state, families and students in higher education [3, p. 2].

Thirdly, social / private concepts differ in social sciences, from economics to different trends in political and communication theory.

Finally, there has been a steady and dominant perception of the notion of public good or public interest in Anglo-American social science over the past half of the century, and it partially overshadowed the public dimension in higher education and other sectors.

Neoliberalism introduced a new regime of regulation or the form of government in the field of higher education. To understand this, one must understand that the liberal welfare regime maintains fundamentally different assumptions at the level of politics and economic theory, as well as at the level

of philosophy. The central defining feature of the new mark of neoliberalism is the revival of many provisions of classical liberalism, especially classical economic liberalism. Basic assumptions of neoliberalism are as follows:

- Self-interested person: people are viewed as economically interested actors. From this perspective, the person was presented as a rational optimizer and the best judge of their own interests and needs;
- Free market economy: the best way to distribute resources and opportunities is through the market. The market is the most efficient and morally fair mechanism;
- A commitment to non-interference: a free market is a self-regulatory order, it regulates itself better than a state or any other external force. In this aspect neoliberals demonstrate a clear distrust of the state power and seek to limit it within the framework of a negative concept, limiting its role in protecting personal rights;
- Free trade commitments: cancellation of tariffs or subsidies or any other form of state protection or support, as well as support of a floating exchange rate and an "open" economy [4, p. 314].

Thus, Anglo-American policy in higher education focuses on private benefits for students and graduates. This mainly concerns higher earnings, individual choices and consumer satisfaction. The emphasis on private benefits, which is consistent to a greater extent with a marketing approach, has encompassed many higher educational institutions and is used to substantiate a steady increase in tuition fees. The social aspect is defined narrowly and in terms of a market economy, in which individual preferences constitute a priority. Thus, the main social role of higher educational institutions is seen as their contribution to profitability, innovation and economic growth. Neoliberal governments have no desire to identify, control, measure (where possible), and regulate the collective effects of education such as social literacy [3, p. 3].

In social policy, the contribution of the higher educational institutions to social justice is considered to be core. Other social contributions are often considered as a side effect of the benefits of graduating. Such an approach reduces the fiscal burden of the state, but also reduces the share of social institutions and increases the risk of not providing public goods [3, p. 3].

In *The Pure Theory of Public Expenditure*, Paul Samuelson defined the concept of the public and private sector, which is dominant in economic policy today. Public goods are defined as non-competitive and / or non-exclusive. The goods, when they are defined as non-competitive, are consumed by any number of people and are not exhausted. The benefits are non-exclusive when access to them cannot be limited to individual buyers. Private goods are neither non-competitive, nor non-exclusive. They can be produced, packaged and marketed as individualized products in the markets.

Public goods and partly public goods are produced unprofitably and require state funding or charitable support. They do not necessarily require full state funding, but may be produced in public or private institutions [5, p. 387-389].

P. Samuelson's concept of public and private goods has created the basis for the following variations, such as: the benefits of shared use, competitive but not excluded; "club goods", exclusive, but not competitive; and "customs goods" that are accessible to all but specific groups of the population and are non-competitive within the group. Public goods are goods that are produced in both the private and public sectors, which are competitive and exclusive, but are funded by the state, since otherwise there will be a shortage of these goods. Despite rather generalized conditions, the definition of P. Samuelson is not universal, since it cannot be applied to all societies, but rather embodies the norms of a capitalist society that corresponds to the idea of an "institutional world".

Among the capitalist societies, John Locke's or Adam Smith's concept of the limited liberal state and the "zero sum" between the private and social are most commonplace. In such societies, state economic entities view private business as the default manufacturer, except in cases of market failure with respect to the production of important goods. This political approach increases the opportunities for trade and capital accumulation, while providing a simple distribution of funding for such fields as higher education and research. The government finances the goods to the extent that the market does not. Samuelson's definition of the public / private correctly defines the market failure as a basis for fixing the minimum required level of public spending on education and research. However, its definition is simplified and has certain gaps.

First, this definition is separated from the historical events. Whether the good is public or private is determined in accordance with the nature of this good: universal, unchangeable and not context-related. It is right sometimes, but not always,. This is right in relation to sunlight, which is always a public good. But this is wrong when the character of the good is determined by politics or state system, as is the case with higher education [3, p. 5].

The second problem is the assumption of a "zero sum". This is the idea that if the good is not social, it should be private, and vice versa. Under certain circumstances, public goods and private goods are not goods substitutes, but rather complementary. For example, the fundamental research of the university, together with its links with commercial and non-profit organizations, generates both public goods and private goods directly and indirectly. The policy differs from the fact that higher educational institutions are funded on the basis of a zero-sum distribution between public and private costs and benefits, as in the UK; or higher educational institutions

are funded by taxation as a universal service with private benefits, as in the Nordic countries. A zero sum or a positive sum is a political choice.

The third problem is that the definition of P. Samuelson does not solve the majority of problems associated with the public goods, which, as a rule, go beyond the boundaries of the economy, are hardly limited, investigated, measured and evaluated under shadow prices. The naturalistic formula by Samuelson is not able to clearly observe the regulatory aspects. The economic definition of public goods by P. Samuelson differs according to the standard assumptions of the economists. Neoliberal economists tend to mitigate the market failure for collective goods, or they assume that private investment will generate the necessary public benefits with the help of the spillover effect. Social democrats and endogenous growth theorists are talking about increasing potential of public goods and public investment.

All three of the mentioned problems are correlated. Despite the definition of P. Samuelson, products manufactured on the market, and non-market goods are not the two sides of the same coin. They do not have a common ontology. Market public goods should be viable in the current market of transactions, and state social goods should be politically viable, they are created under the influence of many factors, in addition to the market failure. We can make a conclusion that the definition introduced by P. Samuelson is too brief [3, p. 6].

John Dewey gave the most influential definition in political science about the distinction between the public and the private as state and non-state. In Dewey's book "Society and its Problems," Dewey notes that while most social operations fall into the private sphere, some concepts are perceived as social, because they have a broad "public interest" and are turned towards society. A social transaction can become "social" when it has indirect consequences for others, then people outside the group will be directly involved in the transaction. According to Samuelson, higher education is only a public good by its nature, if it cannot be provided by the market. For Dewey, any or all aspects of higher education can be both public or private. Potentially education or research have a comprehensive impact when they affect a sufficient number of people. Even privately owned commercial higher education is a matter of public interest if people and the government determine what it should be [3, p. 8-10].

In order to answer the question of the essence of higher education from the point of view of the topic of this study, the features of higher education, which can be attributed to both the public good and the commodity, were analyzed.

Thus, what features of higher education allow to assert that it pertains to the public good? To answer this question, it is advisable to analyze the main features of public goods once again.

Economic thought determines public goods as being non-exclusive and non-competitive. Non-exclusivity means that such goods cannot be provided exclusively to someone and cannot be excluded from consumption. Non-competition means that the consumption of goods by some people does not reduce its consumption by others. Public goods create a large number of externalities. They are accessible to everyone alike; the marginal utility is equal, and the marginal costs for the production of the public good are zero. It is also a commodity of collective consumption. Economists share public goods that strictly satisfy all of the above conditions as pure public goods, and other public goods that do not necessarily fully satisfy all the conditions, are treated as semi-or quasi-public goods. Moreover, if the benefits of public goods are geographically limited, they are called local public goods, and public goods, the benefits of which are aimed at the whole world, are called global or international public goods. Private goods are different, they do not satisfy any of these conditions.

An important feature of public goods is that their production is funded by the state at the expense of total incomes and does not necessarily rely on prices or any other revenue from users. Therefore, the personal or market provision of public goods is impossible, and even if it is possible, it is ineffective. In addition, public goods are generally available to everyone and they are not subject to competition. In fact, public goods that are subject to economy at scale are better provided by the state as a monopoly than by many producers [1, p.451]. If a product or service can be defined as a public one, then it must be "accessible to everyone" and nobody can use them because of the lack of resources. In practice, the situation is different: access to education depends on the place of residence, the size of the income and, ultimately, the mental capacity, which, in turn, shows that higher education is a commodity.

Some scholars argue that higher education cannot be regarded as a public good, since it does not satisfy one of the first two demands, namely, non-exclusivity and non-competitiveness [1, p. 452].

J. Stiglitz argued that knowledge is a public good since higher education and research fulfill all characteristics of the public good. For example, the theorem is non-exclusive, since as soon as it is published, no one can be excluded from reading and using it, and non-competitive, since the use of the theorem will not affect the use of it by others. It is impossible for the knowledge to become a commodity, because the seller does not lose it by selling it. However, such an argument is based on a mistaken perception of the nature of property. Ownership is not a thing, but rather a set of rights, a social institution. Moreover, in the modern era, it makes no sense to speak of property as a social institution, not to mention the legislative nature of the nation-states. In the modern sense, there is no property without nation-

states [6, p. 402]. It is worth noting that access to many scientific treasures is limited by copyright and patent laws, a free product accessible to everyone becomes something expensive or inaccessible because of geographic location, providing rent for copyright owners or patents [2, p. 137]. As J.Styglitz noted, there are two critical properties of public goods: it is impractical to allocate public goods, and there is no desire to make such an allocation. Although it is appropriate to distribute access to higher education, it is impossible to distribute the benefits of higher education. Eliminating the poor from education consumption will lead to loss of capital and efficiency in the economy. Thus, education, namely higher education, satisfies all three main features of public goods: non-exclusivity, non-competitiveness and the creation of external influences. Other public benefit functions, such as "free-riders", are also relevant to education. Higher education is also associated with asymmetric information, especially as regards incomplete information about quality. In addition, higher education institutions have several goals, and they are not only economically viable. They also produce various output products, some of which are tangible, and many others are not [1, p. 452].

Traditionally, the functions of higher education constitute the basis of life of the societies. First and foremost - higher education helps in creation, improvement, absorption and dissemination of knowledge through research and education. It has been established long ago that universities are a cradle of ideas, innovations and development, and gradually they become a reserve of knowledge. Secondly, higher education promotes the rapid industrialization of the economy by providing human resources with professional, technical and managerial skills. In the context of transforming society into knowledge society, higher education provides not only skilled workers but also workers prepared for the new knowledge that is necessary for the rapid growth of the economy [7, p. 21-22] The supporters of the theories of endogenous economic growth argue that the groups of well-educated people who work together are more productive rather than if they all worked individually with less educated people. E-mail and the Internet are an example of this. Knowledge, which is free to access, has a great influence on overall productivity [8]. Thirdly, universities are institutions that help shape the person's character and morals; they embody ethical and moral values, formulate well-behaved habits and make possible changes in the views that are necessary for the socialization of individuals, encourage the modernization and general transformation of society through protection and strengthening of public values. Fourthly, higher education also helps in the formation of a strong nation-state, promotes the development of democracy by educating active citizens who participate in the civil, political, social, cultural and economic activities of a society that understands, interprets, preserves, strengthens and promotes national, regional, international culture

and history, in the context of cultural pluralism and diversity. It also has the potential to produce high-level social and political leaders [7, p. 21-22]. At the very end, recent studies have revealed many non-monetary benefits from higher education: longer life expectancy; reducing alcohol and tobacco consumption; less probability of obesity; more likely to be involved in prophylactic health care; better mental health; better general health; greater satisfaction with life; less crime; greater propensity to vote, volunteering, trust, and tolerance. Almost all of these provides wider social and individual benefits [9, p. 9].

In addition, higher education promotes the development and improvement of education at all levels and allows people to enjoy the expansion of the "life of mind", offering wider cultural and political benefits, and thus serving the public interest. An important component of public interest in higher education is its role in creating a meritocratic society capable of educating the best political leaders, civil servants, doctors, teachers, lawyers, engineers, and business and community leaders at the same time [10, p. 37-39].

However, the study of the essence of higher education showed that there is a rapid change in the paradigm of higher education. Even in economically prosperous countries, higher education systems are in a state of strong financial constraints: on the one hand, an increasing number of students, and a chronic lack of public funds on the other. In recent years, in most countries, this has led to serious consequences, caused by the reduction of the state allocation of higher educational institutions, respectively, and the cost per student [1, p. 456].

Externally, universities are increasingly approaching private governance models and public sector corporations. The structural subdivisions of universities turn into centers of financial responsibility, whose heads are executives coming from the private or public sectors. Regardless of the different views on the advantages and disadvantages of such changes, transforming education into goods is a reality in which scientists have to live.

Proponents of education modification movement argue that this process will transform higher education into a more flexible and efficient institute. Expansion of the market in the audience will provide better value and quality, and the university sector will become more efficient and more responsive to the needs of society, economy, students and parents. The political direction of creating a market for higher education is fundamentally ideological. However, the transformation of education into goods does not necessarily lead to the creation of a market for the sale and purchase of academic education. Indeed, it is not always clear what is being bought and sold. In this way, conditions are created for the institutions to compete for resources and funding. It is important to understand that the transformation of education into goods is

equally a political, ideological process as an economic phenomenon. For example, governments often contribute to a well-defined policy through a market economy. This tendency is not a triumph of a free market economy. Indeed, it can be argued that the market-based trade in education has led not to a decrease but to increased interference and micro-management of university life. Governments are desperately mobilizing students and their parents to choose a university under pressure from the market and marketing tools. According to the logic of the market, the customer is always right, so universities are guided by the interests of students, and not the academic community [11, p. 1-3].

Another important factor contributing to a radical change in thinking about the nature and role of higher education is the use of neoliberal economic policies for stabilization, structural adjustment and globalization associated with the International Monetary Fund and the World Bank. Neoliberalism, as well as liberal neutrality, is insolvent and extremely inadequate in the management of social practices, especially in the case of higher education. Such a policy undermines the role of the state and involves eliminating the influence of the state, as well as the liberalization and privatization of several social and economic sectors, including higher education and even social security programs. This policy also clearly contributes to the growing role of markets. The treatment of higher education as a product received great support from such politicians and organizations. Liberal policies have been introduced in almost all developing countries, and even in many developed countries, where there is reasonable justification for reducing public funding for higher education. Higher education, as a commodity of international trade, is capable of generating a huge amount of profits for exporters of education [1, p. 456].

Many governments of exporting countries have encouraged higher education negotiations under the GATS and WTO, since trade in higher education is essentially seen as an important source of income for universities, thus reducing the obligation for governments to allocate most of their resources. For example, even some of the best universities in the world, such as Oxford and Cambridge, seen as the gold standard in higher education, are involved in business, trading and selling their degrees to students abroad [1, p. 457]. Creating the General Agreement on Trade in Services (GATS) reflects the formalization of the market processes, driven by the growing need for independence of public institutions and the procedures for international trade in services. The GATS covers all international services, including education. Within the education sector, GATS covers the following categories of education services: primary, secondary, higher, adult and "other". GATS education trade takes place in four modes: cross-border supply of services (where consumers remain within their own country);

consumption abroad (where consumers cross the border); the commercial presence of a provider in another country (institutional mobility); the presence of persons in another country (staff mobility) [12, p. 9]. The GATS considers public goods as commercial goods and even global public goods as global commodities intended for trade and profit. It is equitable to fear that the nature of the benefits of general consumption will be revised and that public education will be a commodity for which GATS will provide a political and legal basis for deregulation and privatization [12, p. 58]. The transformation of education into commodities leads to a mass privatization of education that increases tuition fees and growing inequality because of the access restrictions. Moreover, as the driving forces of the national state and state control over higher education are reduced, the ability to plan the education sector for national needs will completely disappear, as education will be formed in the markets to meet the needs of the market, and international trade will prepare people to meet the requirements of the labor markets of the developed countries [12, p. 62]. Entry to the domestic market of foreign private institutions may also have a negative impact on domestic government institutions, especially in developing countries, which are not necessarily competitive and not fully oriented to the needs of the market and often serve the national interests of more influential countries [12, p. 65].

As a rule, it is stated that international trade in higher education is beneficial both for exporting countries and for importers. Importing countries have access to a high-quality higher education system, and exporting countries are gaining economic benefits, in addition to receiving academic payments. However, as practice shows, developing countries have both economic and academic losses, whereas rich countries can only have economic benefits.

Individuals with average and higher incomes are more likely to profit from the state financing of higher education rather than low-income groups, thereby exacerbating uneven distribution. Although this argument is true to a certain extent, the situation in developing countries is changing rapidly: access to higher education is no longer limited to middle-level groups, and the level of engagement of poor social and economic groups is increasing, albeit slowly. On the other hand, the adoption of neoliberal arguments on state funding for higher education and the withdrawal of state will reduce the participation of socio-economically weak sectors of society in higher education and will further emphasize their inequality in accessing higher education services [1, p. 459]. The transformation of education into goods and its internationalization leads to the brain drain and a serious shortage of skilled labor in developing countries. Higher tuition fees paid by foreign students, relatively low wages in their home countries, and better job markets in developed countries will even more potentially contribute to the brain drain [12, p. 65].

With regard to academic research at universities, there is a steady increase in private interests. Knowledge, which is essentially non-exclusive and non-competitive, has been privatized. An argument for the privatization of codified knowledge is the possibility of obtaining high benefits, which in the future encourages more investment in research and creativity. [2, p. 139]. In a broader sense, the transformation of knowledge into goods in the field of higher education is one example of the "second movement of the corpus". The first movement began in England in the fifteenth century, and this is especially true in the process of moving away from the jointly-owned land and turning it into private property in different ways and means of the state-involvement. In the center of the "second movement of the corpus" knowledge (instead of land) is regarded as a private commodity that is subject to commodity registration. Reflecting this, Radder implies that the redeeming of academic research can be seen as part of the "economization, or economic instrumentalisation, human activity and institutions, or even the goals of the social subsystem" [6, p. 400].

Thus, it remains ambiguous whether higher education is a public good or a commodity. Studying at high school is usually a combination of both. Public goods include individual non-market benefits and acquired knowledge that is not excluded or non-competitive. However, when studying creates additional value, it acquires a new feature, which is competition. Apart from that, admission to higher educational institutions with high demand is exclusive. This creates prerequisites for higher education market emergence. The transformation of higher education into goods is caused by the need for institutional independence of universities, as a consequence of neoliberal policies, trade agreements, and bolstered up competition [13, p. 29].

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## **STUDENT CLUB ORGANIZATION AS A PROJECT IN THE ACTIVITY OF THE SOCIO-CULTURAL SPHERE MANAGER**

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Socio-cultural project as a special form of organization, allows you to attract resources, systematize the competent actions of professionals, maintain relationships between different structures, enterprises and organizations, to act as an effective modern management model. Project management means organizational measures aimed at developing certain stages that contribute to the effective solution of problems and tasks, as a means of direct interaction, resource potential, a specific systemic form of

regulation of socio-cultural processes. Due to the fact that a specific feature of project management, associated with the analysis, development and implementation of various phased activities, this aspect has the ability to influence technologies that meet modern needs of the socio-cultural sphere.

Addressing issues related to the functioning and development of management processes, development and testing of socio-cultural management technologies, project activities are devoted to research in various conceptual areas. In the context of our work, aspects of project management are explored by R. Archybald (2017), who focuses on organizational and practical concepts, the basic elements of planning and project management, creating design offices. M. Brill (2018) notes the growing influence on the personal professional traits of professionals in the field of socio-cultural management, which are associated with conditions of uncertainty and innovation. F. Colbert, J. Nantel, S. Bilodo, J. Rich (2004) consider the organizations of the cultural sphere as a whole, studying their place in society and their mission in the production of goods in the cultural sphere. K. Davydovskiy (2014) formulates the parameters of the art project and determines educational and extracurricular art projects of educational institutions, also determines the features of resonant art projects and their impact on the formation of the cultural and artistic environment of Ukraine. N. Ivanovska, V. Shulgina, O. Yakovlev (2018) analyze the theory and practice of socio-cultural design in art, determine the system characteristics and reveal the functions and forms of innovation in the modern cultural space. Ya. Martynyshyn and O. Kostyuchenko (2018) point to project management as a strategic tool for the development of socio-cultural sphere. The authors emphasize the main components of effective project management as a kind of generator of competitiveness in the management of socio-cultural industries, able to ensure the implementation and high level of viability of socio-cultural projects in the context of globalization. S. Obors'ka (2018) explores and analyzes key aspects of event management in the creation of auxiliary structures of artistic processes and analyzes the impact of art projects in social, artistic and economic aspects. L. Obukh (2018) identifies and comprehends the theoretical and practical aspects in the field of academic music, as the realities of the modern economic world encourage to master the basics of management and use music as an advertising product. M. Poplavskiy, (2019) describes the phenomenon of project activity «point of intersection» and its spread in contemporary art practice. Noting the importance of the research of these scientists, it should be emphasized that there are still many unresolved issues in this problem.

The problem of managing socio-cultural projects in both theoretical and practical aspects deserves constructive attention. In particular, student club organizations need further study as a project that allows to supplement

the very nature of practical work, to identify and form competencies in the activities of the manager of the socio-cultural sphere.

The current state of economic development in Ukraine requires new approaches to the activities of socio-cultural organizations and, above all, a high level of management culture, perfect innovative and creative ideas aimed at meeting the demand of consumers of cultural services and finding ways to succeed in competition. Practice shows that solving production problems in the project management process requires the development and application of special innovative principles, methods, tools and forms of operation. This necessitates not only the search for new ways to improve the efficiency of organizations, but also the development of scientific foundations for their development, which allow to justify and effectively apply the modeling of innovative approaches in the management of socio-cultural projects. N. Ivanovska, V. Shulgina, O. Yakovlev (2018) emphasize the innovative and creative component of project activities, «because it involves the transformation of reality, it is built on the basis of appropriate technology that can be unified, mastered and improved» [5, p. 22].

M. Bryl (2018) emphasizes that «a manager is a business entity, a market orientation manager who actively implements effective business conditions carries, innovations and achievements of scientific and technical progress, carefully takes into account changes in international relations, timely influences the structure and dynamics of supply and demand, skillfully restructures production and economic activities taking into account market requirements. A manager is not only a professional, he is a person who is a subject of work in the field of management» [2, p. 47]. This means that the management system of the organization must be open to innovation and promote self-development and staff training at all levels of the relationship with the environment and at all stages of the life cycle. If the control system is not improved at the end of each phase of its cycle, then there is no transition to a new quality, ie it collapses because it does not meet the requirements of the external environment.

Socio-cultural project management has emerged as a new direction of management and requires material and labor resources, organizational, economic and legal support to implement the creative idea of the project. R. Archibald (2017). notes that «projects are designed to achieve a specific result at a certain point in time and within a set budget. They do not rely on the functional structure of the organization. Each project is unique: none of them is an exact copy of the previous ones. A project is a process of creating certain results. The project can be considered as a holistic process necessary to create a new product, a new plant, a new system or other predetermined results» [1; p. 57-58]. That is, the management of socio-cultural projects is aimed at obtaining an effective result from a particular project under certain

conditions, over a period of time, to master modern technologies, new forms of interaction with audiences and consumers of cultural services, partnership development, cultural interaction with other areas of economic activity. Ya. Martynyshyn and O. Kostyuchenko (2018) define the features of project management: «first, that its holistic concept is based on the interaction of economic, cultural, socio-psychological, creative and technological aspects; secondly, its effectiveness depends on effective time management, material and human resources, project team, innovation and efficient use of investment, as well as the realization of creative potential, professional competencies (multicultural, speech, information, political, socio-psychological, etc.); thirdly, its competitiveness as a component, complex comparative characteristics of competitive advantages, management factors and productivity of resource use, compliance of the economic entity with objective socio-cultural conditions, a measure of attractiveness for the consumer of socio-cultural services» [6, p. 26].

As we have noted, the management of socio-cultural projects orients the creative team to achieve a specific result over time, focusing on limited resources - financial, human, informational, organizational and others. Thus, the management of socio-cultural projects is also characterized by functions: organization, planning, motivation, control. Each of these functions is necessary for the manager of the socio-cultural sphere. Planning provides the basis for the implementation of the main strategic goal – the creation and implementation of the project, profit, and the functions of organization, motivation and control are focused on the implementation of tactical tasks. Socio-cultural project management plays a key role in the effective implementation of the project concept, in bringing the project to the audience as the end point of the creative process, the implementation of organizational and managerial decisions adequate to modern conditions.

The organization as a technological process has characteristic features and principles, among which we can highlight the following:

1) situational principle, based on determining the degree and nature of socio-cultural organization and establishes its activities;

2) the principle of partnership, which provides for the construction of relations between the participants at the level of subject-subject relations, mutual interest, cooperation;

3) the principle of constant action of the organizational factor, which permeates all stages of preparation and implementation of the project.

Regardless of the scale of the socio-cultural project, the manager in the process of performing the organizational function must be able to:

- analyze and determine the goals of the project, detail them, determine the degree of participation in the project of the organization, person;
- identify activities necessary to achieve the goals;

- to carry out distribution of directions of activity between experts, and also to establish coordination by means of establishment of duties, types of the reporting, terms of performance.

The function of the organization is to unite the activities of the entire group involved in the development and implementation of the project, in defining the mission, role, responsibilities and accountability of each of them. The organization is the most important function of managing the process of development and implementation of socio-cultural project.

Thus, the organization of management of socio-cultural projects is a structural system in the form of relations, rights, goals, roles, activities, and with on the other hand, it is the process by which a project is developed and implemented, clarifies, maintains or reduces the project structure of the organization.

S. Obors'ka (2018) «features of event management of art projects are the combination and coordination of methods and processes of business administration with the art world – practical aspects of doing business, such as rational support of budget expenditure management, efficiency» [7, p. 389]. The concept of "management" is more universal and is used in cases where there is a problem of influencing the system or the person in order to transform them into a new quality on the basis of the laws inherent in this system. The department performs the functions of regulation, coordination and control over the activities of various institutions and organizations, working groups, committees involved in the project, at different stages.

Socio-cultural project management is a rather complex entity, as it absorbs the content of activities, organizations and technologies. The content of the project management process is determined by the essence, goals and objectives, principles, methods, functions, specifics of the sphere of activity, the level of this body in the general system of governing bodies. The most common in the management of socio-cultural projects was a functional management system, built taking into account the goals and objectives of a particular project.

Depending on the tasks to be solved in each specific project, the management system is a complex dynamic structure in which three interrelated parties can be distinguished: functional, structural, informational. Each element of the management system functions and develops on the basis of the solution of the set purposes and tasks, and at the same time all elements of system, functioning, acquire new quality and new value. The process of managing socio-cultural projects is characterized by a constant change of states in the system, a change in the relationships between its elements, due to the goals and objectives of a particular project. L. Obukh (2018) emphasizes that «cultural project management is a purposeful process of system management in order to create, preserve and disseminate

cultural content that gives the expected result. Although the project, unlike the process, has a limited set of actions, limited resources and is a temporary organization» [8, p. 89-90].

Management of socio-cultural projects includes a system of resource provision: staffing; financing; the amount of salary; types of encouragement or punishment; material and technical resources.

As cultural institutions operate on the basis of market conditions, where there is a potential consumer and a potential producer, the main goal of the project is to combine their interests and obtain mutual benefits. The spectator gets the opportunity to enjoy communication with art, the organizers – material benefits. However, dividends, ie income from art projects, are not only material but also moral, ethical, social, cultural. M. Poplavskyj (2019) characterizing the phenomenon of project activity – «point of intersection» and its spread in modern art practice emphasizes the need for such an approach because the existence of art culture in public practice is carried out in accordance with business laws in which the commercial component is crucial value» [9, p. 249].

In the market of socio-cultural conditions in the development of the project is an acute question of project cost, income, profit, ie obtaining the projected result. When calculating the cost of a project with autonomous financing, two main parameters are taken into account – tangible and intangible costs. Conquering the market for an art project is one of the main conditions of a market economy, and it is necessary to begin activities with its conquest by collecting and analyzing information about the target audience, ie from marketing research.

According to F. Colbert, J. Nantel, S. Bilodo, J. D. Rich (2004), «marketing in the field of culture – is the art of covering those market segments that are likely to interest this product, adapting to commercial product variables – price, place of promotion in order to establish contact of the product with a sufficient number of consumers and achieve goals compatible with the mission of the organization» [3, p. 27].

Marketing research may include gathering information on the following issues: similar projects have been created over the last five years, and if so, to which target audience they have been addressed; whether they were successful, what were the responses of experts and spectators; in what point of the city they were located, what method of pricing, duration of operation; the audience must be studied in terms of segmentation of the information field to identify interest in the planned project.

The next stage is the launch of the project into production: development of an advertising campaign to promote the project on the market, the beginning of the rehearsal period, the inclusion of all production services.

The project management model and the principles of forming the council

and delegating powers to it are determined in the process of constructive dialogue between stakeholders, organizations, legal entities and companies. financial structures regulated by the relevant legal documents. An important condition for effective management is the use of different models of stakeholder participation in project management: participation in decision-making, participation in project development and implementation, participation in the evaluation of the creative team, participation in obtaining the planned results.

When developing and implementing socio-cultural projects, the manager must take into account the possible means of implementation and motivation of those involved in the project. In order to determine the personal contribution of each project participant (or group of people), it is necessary to analyze the project process by areas of responsibility, identify key people in its development and implementation, determine the individual motivation of each. These are first of all: persons who are the initiators of the project idea; persons involved in project development and its protection from investors; persons responsible for project implementation.

The implementation of a socio-cultural project requires material and personal resources, as well as organizational, legal and financial support. The main direction of project management is the implementation of entertainment projects: shows, competitions, festivals, theater performances, carnivals, public holidays. The implementation of such forms of projects becomes real and productive in the presence of patrons, sponsors, stakeholders, organizations and government agencies. The possibility of payback of these shares and profits can be real at a high ticket price or with an increase in the number of leases of these shares. When selecting, preparing and conducting large-scale projects should pay attention to: the thematic nature of the action; venue; frequency of holding; the volume of involved creative teams and performers; financing system; market orientation. K. Davydovskiy (2014). concludes that «long-term art projects have the greatest semiotic influence on the formation of a new cultural and artistic environment. Unlike one-time artistic actions, which, despite careful preparation and successful conduct, leave listeners with only pleasant memories, art projects that operate on a permanent basis, create their own sign-semantic system of cultural and artistic interactions» [4, p. 113]. Increasingly, both government and commercial entities are beginning to show interest in allocating special grants and announcing competitions to develop specific projects and areas of the country's cultural life.

In our opinion, the project management system in socio-cultural organizations is a holistic set of various interconnected functional components that have a managerial impact on the objects of management. The directions of the management system are distinguished by the specifics

of management functions, the scope and scale of authority, uniformity of load distribution, qualification requirements for the team, information support and opportunities for territorial location. Therefore, all these factors affect the dynamics of the formation and distribution of areas of work in the management system as a whole and in general [10, p. 138-152].

In the activities of the manager of the socio-cultural sphere in the formation of concepts of student club organizations as a project, it is necessary to take into account the following criteria:

- the student club should be an open system of artistic and creative development of the individual in interaction with the socio-cultural environment of his life.

- members of student club organizations must quickly adapt to new approaches in the innovative artistic and creative development of the team, to a new strategy of interaction between participants in this process, to modern new requirements of socio-cultural practice.

- artistic and creative activities of student club organizations should be manifested and deepened at the level of practice with a focus on humanistic, national and cultural values.

- the management of the process of artistic creativity of students united in the club team is carried out by its leader – mentor – manager.

Thus, the purpose of student club organizations is to ensure the aesthetic and educational impact of club activities on the formation of the inner world of its members, their awareness of spiritual values, the development of their worldview, as well as the content of youth leisure with various types and forms of art.

First of all, proposing a concept that provides for the formulation of various aspects of student youth participation in productively organized activities should highlight: 1) the application of principles aimed at forming the interests, needs, values of student youth; 2) promotion of self-determination, self-improvement, self-realization of each participant; 3) the formation of worldview and values to national culture; 4) the use of techniques, methods and forms of work to create an atmosphere of cooperation between the subjects and objects of club activities; 5) ensuring a positive psychological climate in the activities of the student club; 6) the idea, creation and implementation of events, cultural and artistic projects that meet with annual requirements of socio-cultural practice; 7) application of an integrated approach to the organization of student club activities.

Thus, the main purpose of implementing the socio-cultural concept in the activities of student club organizations of higher education is to create conditions that help primarily in the socialization of the student's personality, identifying his individual qualities, learning, skills, activities in various areas of specially organized artistic and creative work.

In accordance with the purpose, principles, approaches and principles, we determine the main functions of the socio-cultural sphere in the activities of student club organizations. The integration of educational, developmental and recreational functions determines the content of the concept and is aimed at cognition, assimilation and translation of spiritual values, as well as the identification of personal qualities of club members in the cultural and leisure sphere. The student club covers various types of activity, which allows you to design the dynamics of effectiveness in achieving goals and developing the creative personality of members of the organization. In accordance with the functions laid down in the concept, a team of specialists capable of effectively implementing the artistic and creative process in a higher education institution will be formed.

Thus, taking into account certain functions and factors, we will ensure the variability of the content and forms of classes in the holistic context of the organization of the activities of various student clubs.

The concept of organizing the activities of the student club as a project will be tested in four stages: 1) ideological and ascending; 2) structural-indicative; 3) strategic and technological; 4) conceptual and implementation.

Within the ideological and ascending stage, the organization of a student club in a higher education institution as an idea will be formed according to the official decision of the leadership or the organization of student self-government.

Strategy formulation: the mission of the purpose, the basis of the existence of the organization is reflected in the planning of the student club.

Characteristic features: organizational instability; short-term ideas about internal and external processes.

We define the following tasks: implementation of ideological, psychological and pedagogical diagnosis of the organization and team members: why the organization was created; what values the organization promotes; understanding by members of the organization of corporate standards, creation and planning of work of art and creative council. For this purpose, forms and methods of work will be used: the collective form of activity of the student club requires methods of free conversation, explanation, illustration, etc.; individual form of work - encouragement, survey of participants, listening, observation, evaluation of individual properties and qualities; cooperation between the management of the educational institution, the artistic council, the public in determining the mission, goals, objectives, work of the club team.

The purpose of the structural-indicative stage will be the natural need for further activities by expanding, structuring the organization and planning activities.

Formulation of strategy: planning and preparation of programs of activity

for the year, mission and tasks are formulated and based on the ideas that formed the basis for the creation of the organization at the first stage.

Characteristic features: division of responsibilities; team work and formed hierarchy; own standards and methodology; funding combined with long-term planning.

At this stage, the following tasks are set: acquaintance of participants with the structure and diversity of the student club; formation of interests in culture and art, artistic tastes, development of empathy, creative qualities and properties. The tasks of this stage were: to use various forms (lectures-talks, group visits to concerts and historical and cultural monuments, workshops, meetings with famous cultural and artistic figures, planning and implementation of events, rehearsals, further projects) and methods of work : (communication, persuasion, suggestion, positive example education, self-knowledge, stimulation, illustration of artistic values and cultural heritage) for productive organization of student club activities.

Thus, the methods and forms of work used at this stage, contribute to the active enrichment of students' new knowledge, the formation of values, moral imperatives, artistic tastes, preferences, development of needs and interests through cultural and artistic practice, will understand the mission, purpose, structure and direction of activity of student's club.

At the strategic-technological stage, conditions will be created for «immersion» in the content of the practical activities of student club members.

Strategy formulation: development of strategic club management.

Characteristic features: constant exchange between linear and functional management structures; long-term plans; quality growth and emphasis on results; clear targeting.

The main tasks of this stage: the formation of practical skills necessary for the activities of the student club; actualization of theoretical knowledge from ku culture and art. At this stage, the following forms of work are used: rehearsals, lessons, practical work, analysis of activities. Among the main methods – explanations, illustrations, reproduction, exercises, search methods, situational creative tasks.

Thus, the work carried out at the strategic and technological stage will prove its effectiveness. This will be manifested in the creative attitude of students to different activities of the student club, in the formation of creative abilities to rethink new knowledge from one field to another, gaining new information, to actively interact while performing certain tasks.

The next conceptual and implementation stage will be aimed at implementing the acquired knowledge, skills and abilities of participants in the activities of the student club.

Strategy formulation: new management methods, interactive strategic

management.

Characteristic features: lack of clear delineation of functions of employees, flexible relations in the student body; ingenuity, creativity, innovation

At this stage, the following tasks were set: analysis, design and implementation of projects; participation in various cultural, artistic and leisure activities; demonstration of the practical level of the student club. Forms of work: preparation and organization of collective performances; participation in concerts, festivals and competitions; analysis and discussion by members of the student club of artistic events, works, impressions from their own projects. Methods of dialogue, mutual influence, empathy, comparison, psychological influence, subordination, discussion, round tables, consideration of opinions, strategies of own behavior, etc. were used.

Thus, the theoretically developed meaningful description of the concept of organizing the activities of the student club will be practically implemented in the form of an integrative approach at all stages of implementation. Thanks to it, students will intensively develop knowledge, practical skills and abilities in the socio-cultural sphere.

Summing up, it is necessary to emphasize the main features of the future creative manager of club organizations, which determines: the problematic vision of the world, working with facts and objects in the socio-cultural sphere; carries out modeling of situations; conducts productive cognitive, communication and presentation activity during practical, training classes; demonstrates creative approaches using imagination, fantasy and intuition; sets and formulates management goals and objectives; carries out a systematic and panoramic perception of reality, psychological self-regulation, insight, inertia of thinking, the ability to involve people in joint activities, the ability to quickly rebuild. [11, p. 130-138]. New research on this issue should be aimed at clarifying the composition of the elements of the system of creative manager and the development of new innovative methods.

Conclusions and discussions. The paper formulates the results of research on the identification and generalization of current trends in the use of socio-cultural projects as a special form of organization in management and identifies the main directions of its effective functioning. Generalizations of modern trends in the socio-cultural sphere allow us to draw the following conclusions:

1. Project management in socio-cultural organizations is a structural system in the form of relations, rights, goals, roles, activities, and on the other hand, it is a process by which the project is developed and implemented, helping to attract additional resources, accelerating adaptation of organizations and institutions culture to modern conditions.

2. The activity of student club organizations, as a project, is to ensure the

impact of club activities on the formation of the inner world of its members, their awareness of spiritual values, the development of their worldviews, as well as the content of youth leisure with various types and forms of art.

3. The introduction of socio-cultural concept in the activities of student club organizations of higher education is to create conditions that help primarily in the socialization of the student's personality, identifying his individual qualities, learning, skills, stimulating activity in various areas of specially organized artistic and creative work.

The practical significance of the results is revealed in the possibility of their use to solve a number of theoretical problems and develop recommendations for the use of higher education institutions in the preparation of plans, programs, development of methodological materials to support cultural organizations and institutions, practical activities of student clubs.

It is promising to study the importance of the approach in project management, which can complement the character of the manager of socio-cultural sphere, his creative and professional competencies, taking into account the cultural and artistic needs and their comprehensive perception by a wide audience.

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## THE CONSEQUENCES OF DIGITALIZATION OF ENTERPRISES BUSINESS PROCESSES

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The main prerequisites for the digitalization of Ukraine's economy and in particular the business processes of enterprises are the expansion of Internet access; increasing the number of users of this network; development of e-commerce, the country's IT industry and the national e-government system. The level of development of technological infrastructure reflects the growing opportunities for storage, transmission and processing of data, and the digitalization of all areas of economic activity, stimulating the use of digital technologies in enterprises indicates the priority of such development at the state level.

In turn, the digitalization of the economy will lead to changes in economic management models from program-target to program-forecast; economic structure, traditional markets, social relations, public administration, in connection with the implementation of digital technologies; the main source of added value and structure of the economy through the formation of more efficient economic processes provided by digital infrastructure; mechanism of economic development to institutions based on digital models and processes [1].

To study the consequences of digital transformations, it is necessary to solve the following tasks [11]:

- to determine the phenomenon of structural changes in the economy

caused by the digitalization of business processes of enterprises, its content, forms of manifestation, functions and causes;

- to classify structural changes and structural changes in the economy, to identify their quantitative and qualitative characteristics and to explore the patterns of their interaction;
- to analyze the impact of changes and shifts in the structure of the economy on the dynamics of key macroeconomic indicators;
- to study the features of structural changes in the modern domestic economy as a result of digitalization and to identify strategies to avoid and prevent the dangers associated with these changes.

The transition to something new is always, on the one hand, a process aimed at achieving the set result or goal, and on the other hand, it is an assessment of the risks associated with the expected changes in the current conditions, as well as the development of effective management measures. conditions and factors that determine the success of digital transformation processes.

Digitization of both the country's economy as a whole and individual enterprises and business processes leads to certain structural changes and has its positive and negative consequences. It depends not only on the development of digital technologies, digital infrastructure, but also on network and cybersecurity, electronic identification and trust services, digital skills and innovation, e-government and open data, and so on. The study of such shifts is very relevant because they in turn affect human, financial, technological, informational and national security in general. Perederiy TS also highlights digital security, which according to the author differs from economic security by automating most business processes, the use of the latest digital technologies and their introduction into economic activity [9].

The security system of enterprises in the context of digitalization is presented in the form of a three-layer sphere in Figure 1, where the core is the security of individual business processes, the protective shell - their legal protection, and the link between them - four components (financial, personnel, information and technology). provide protection for both individual business processes and the enterprise as a whole.

The security system of enterprises in conditions of digitalization presented in view of the three-layers bullet in picture 1, where the security of separate business processes is the core, their law protection - is the protective shell and connecting links between them are 4 components (financial, staffing, informational and technological). They provide the security of separate business processes and enterprise security in general.

The state security and security of separate branches and enterprises always was the object of attention of many scholars, science institutions, R&D centers. In conditions of digitalization, the importance of this question

intensifies by the negative impact and risks behind positive trends. In this direction actively working the following scholars: Dzhusov O.A., Apalkov S.S., Apalkova V.V., Kopteva G.M., Markina I.A., Dyachkov D.V., Bagatska K., Heydor A., Ukrainka L.O., etc.

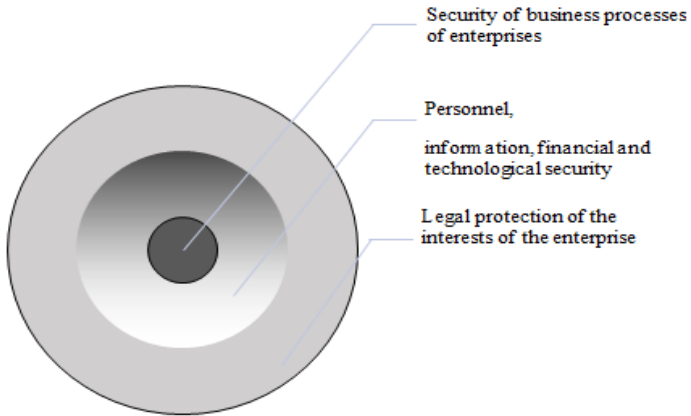


Fig.1. Security system of enterprises in the conditions of digital transformations (developed by the author on the basis of [2-7; 10-12])

Investigations of theoretical, methodological and practical aspects of digitalization and its influence on Ukrainian economy necessitates and gives the opportunity to justify main directions and approaches of execution of progressive structural transformations and define its most dangerous areas.

To provide ease and success of ongoing transformations, it's necessary to perform a detailed analysis of existing business processes and opportunities of their transformation with minimal risks. That's why formation of competency of existing staff and hiring people, who are capable to implement changes and evaluate their resultative is the basis of staffing security as a part of state security and the security of separate enterprises.

Under the influence of active investment activity of leading countries and aggressive policy of the largest IT companies of the world observe structural changes in the capital market. Dzhusov O.A and Apalkov S.S are noticing that observe the trend of increasing investment to global projects based on the formation of consortia and integration groups with the participation of leading countries and developing countries, and global investment flows are directed as in the technology of "mass demand" (Internet games, e-commerce), and in the technology of storing database arrays, which leads to the monopolization of global companies on intellectual capital and information digital space [3]. In this case, the financial security of enterprises will be dependent not only on effective management, level of organization

activities, and resources provided but also on the level of the capital security organization, property, and commercial interest.

The sequence of digital transformation of business processes of enterprises according to the results of the study of domestic and foreign experience by Bagatska K. and Heydor A. [2], has the following stages:

- 1) transfer of data from paper media to electronic;
- 2) transfer of the process, operations, subsystems, and control functions into digital format;
- 3) full integration of enterprise into industry 4.0.

At the first and second stages, when transfer into digital space, the positive effect is manifested in the simplified and accelerated implementation of certain processes associated with the accumulation, retrieval, storage, and analysis of data, through a gradual reduction of necessary resources (labor, material, information, etc.). But also there is a temporary increase in financial investments in technical re-equipment and retraining of staff, the necessity of solution of technological and organizational issues on changing business models and business processes. At the last stage, enterprises can increase production, improve digital technologies, achieve the highest quality of goods, works, services, at a lower cost. That's why today, in our opinion, the sooner the company reaches the third stage, the more chances it has to take a leading position in the market.

In the conditions of digitalization of business processes of enterprises before the management and security service of the enterprise there are new tasks and concerning "acceptance of additional measures for preservation of a trade secret as one of directions of protection of business processes; creation or escalation of the existing structure of information security at the enterprise with the use of information technologies (elimination of leakage of information circulating in information systems from unauthorized access and through technical channels); clarification of the algorithm of functioning of the security service of the enterprise, etc." [6]. Therefore, in the system of information security, an important place is occupied by a thorough study of the identification, assessment and control of risks in accordance with digital transformations.

The main factor that increases the level of safety, according to most scientists and practitioners, is effective risk management. The danger, and in some cases even the threat, in the context of continuous digitalization are the factors presented in Table 1, together with the consequences of their occurrence and factors for their prevention.

The efficiency of transformation always has to be evaluated by improvement of results of activities of domestic enterprises in different industries and prosperity of the population. But in fact, the analysis of indicators of the real GDP shows their negative dynamic. Also, the level

of unemployment and the size of public debt are continuing to grow. These factors are decreasing the investment attractiveness of the country and separate enterprises.

**Table 1**

*Causation of possible threats to digital transformation*

Components of security of business processes of enterprises in the conditions of digitalization			
personnel	financial	informational	technical and technological
<i>Threats (dangers) caused by digital transformations:</i>			
inconsistency of staff qualifications with modern digital trends	outflow information	hacker attacks and other cyber threats	dependence on the availability of the Internet and electricity; digital device failures
<i>Consequences of digital hazards:</i>			
poor performance of work, increase in terms of its performance	loss of financial stability, solvency, competitiveness	software crashes	downtime in production and maintenance processes
<i>Factors that prevent threats during digital change:</i>			
continuous training of existing staff, search for professionals with digital skills	determination of trade secrets of enterprises	creation of departments, digital security services of enterprises	availability of alternative energy sources and alternative Internet providers, support of technical devices in working order

*Source: developed by the author.*

For sure, such trends are conditioned by many factors such as: growing competitiveness on internal and external markets, war conflict in the East of Ukraine, worldwide pandemic, etc. But we shouldn't underestimate the influence of digitalization, which has embraced the whole world. Its influence significantly changes business models and processes in the country and around the world and has an impact on the life of society and separate citizens.

In conditions of digital transformation, the organizational structure of business gradually changes. So-called virtual enterprises become more popular. There are innovative enterprises, which have just a core of the company, and necessary resources involved on the agreement basis. For example, trade companies, which don't have physical stores; taxi companies without their own car parks, garages, and repair shops; building companies without basic equipment and development departments; manufacturing

enterprises without workshops, factory buildings, account offices, HR departments, and lawyers. Pros of such virtual enterprises are agility and the possibility to perform projects with different budgets and timelines, by signing contracts with HR agencies, outsourcing companies, and manufacturing enterprises which are able to refurbish fast according to innovative technologies of manufacturing defined products and so on.

Such a business organization from the first view is risky enough, but in the condition of an economic crisis, it allows adapt faster to dynamic changes of environment and market needs. Examples of such enterprises in Ukraine are e-commerce (Rozetka, Allo, Foxtrot, Mobilack, etc.); digital banking (PrivatBank, MonoBank, Oschadbank, Alfa-Bank, etc.);

Consequence research of digitalization business process of enterprises shows that: 1) digitalization bring changes in organization and managing of enterprises, aimed at accelerating the implementation of all technological processes, achieving the highest quality of products, meeting customer needs; 2) development and use of high-tech information and communication technologies requires new digital knowledge and competencies from employees, strengthens the importance of information security; 3) digitalization of the business processes of enterprises is increasing the level of innovation and becoming a source for its economic growth, development of virtual entrepreneurship is gradually replacing traditional models of production organization.

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## **AUTOMATION OF HUMAN RESOURCES MANAGEMENT PROCESSES**

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Economic security is one of the important issues of enterprise management in a market economy. Every enterprise must be protected and able to withstand threats of various kinds, as well as be able to recover from such threats. For the effective operation of the enterprise in a market economy, it is necessary to ensure effective measures of economic security.

The modern enterprise should be considered as a complex system in which material, intellectual innovation and human components of development of own activity interact. Effective use of these components and the achievement

of priority interests is possible due to the regime of economic security - stable operation of the enterprise, its dynamic scientific, technical and social development, prevention of internal and external negative influences [6].

Personnel security is one of the main parts of economic security of any enterprise. Recently, there has been a noticeable increase in threats from its own staff. This is the result of increased risks in personnel management.

Personnel security is an opportunity, as well as all permissible measures to ensure the security of the enterprise in economic terms by minimizing all existing and anticipated risks and threats associated primarily with the unreliability of employees and poor performance. This also applies to the intellectual potential of the company as all and individual workers, as well as labor relations in general [1].

For the most efficient operation the enterprise must constantly change in accordance with external factors that affect it. Thus, every year the process of transition of enterprises to automated personnel security systems is gaining momentum. This is due to the increase in the amount of information, the constant complication of the tasks set before the personnel security service. Increasing number of employees in the company is also no less important, when it is no longer possible to process the entire flow of information manually.

Despite the existing developments and achievements of domestic and foreign scientists and researchers in the field of personnel security, the problem of timely implementation of modern tools for automation of personnel management processes to ensure and improve it remains unresolved [8].

Existing personnel security systems are constantly in need of updating and improvement. It is necessary to implement and use new tools and mechanisms in personnel management and as a result we will get the most efficient and productive team that will achieve its goals.

Yu. Chaplygina [10] considers the concept of personnel security from the standpoint of the probability of constant threats to the company by its staff, and to avoid such a threat, in her opinion, it is necessary to coordinate the goals of employees and enterprises by identifying mutually beneficial priorities. [10, p. 102-104].

S. Bortnik considers the company's personnel as "the main strategic resource, a priority object of investment and security of the enterprise and the source of its economic development" and proposes to understand personnel security as a state of protection of the enterprise from personnel risks, as well as the ability to resist internal and external influences and threats related to personnel and labor relations in general, the mechanism of which is an effective personnel policy of personnel management, aimed at the formation, maintenance, use, strengthening and development of

personnel, taking into account the development strategy of the enterprise" [3, p. 331-339].

Tactics of any enterprise includes recruitment, dismissal, team relations. Certification and advanced training of employees also play an important role, which is an important part of enterprise security.

Recruitment is a very responsible and important process from a security point of view. In many companies, the recruitment process involves representatives of the company's management, members of the personnel department, and among them there must be a representative or head of security services of the company.

When selecting staff often have to deal with the assessment of personal qualities for compliance with the requirements of the position. In recent years, in the first place, especially in the selection of leaders, the assessment of the ideological position of person was on the first place. At present, this criterion has lost its significance, but the applicant's attitude to economic reforms, knowledge of new official materials and the presence of elements of new economic thinking are important. The main requirement in the selection of personnel is the professional competence of the applicant [2].

Equally important for recruitment is the function of assessing the quality of its work. Special units are created for this purpose. Many companies use a model in which the functions of evaluating the work of staff are distributed between the heads of various departments and human resources. HR develops and implements the evaluation system, develops training programs, conducts surveys among employees and deals with the preservation of information. It is on the basis of these data that the need for new staff is calculated and training is planned. All this, of course, affects the level of wages of workers.

The final word in the assessment of staff belongs to the immediate supervisor. After all, he knows his subordinates and is responsible for the results of their work.

To date, many programs and special software have been developed to automate all of the above processes.

More than 66% of company executives believe that automation of HR processes can improve the quality of human resources. HR-applications for automation - the main category of software for employees in the modern field of personnel management [5].

The following applications and software help members of the human resources department and the security department of enterprises to make the most informed decision when hiring an employee.

1) Bullhorn is a cloud computing company headquartered in Boston, Massachusetts. The company provides customer relationship management (CRM), applicant tracking system (ATS) and operations software for the staffing industry.

2) Breezy HR is an online employee search service that allows recruiters quickly find and work with candidates. Collaborates with LinkedIn and AngelList, as well as working with the team and future employees in real time.

Features of Breezy HR:

- Easy recruitment and tracking of candidates;
- Optimized mechanism for mobile devices;
- Setting questions and requirements for candidates;
- Resume analysis;
- Video interview;
- Real-time collaboration with reminder support;
- Google Calendar integration;
- Interview planning;
- Reminders to candidates;
- Support for external recruiters;
- Etc.

3) Workable is an online system for managing recruitment processes. This solution combines the Applicant Tracking System (ATS) and a recruitment platform with a powerful search engine, sharpened to search for relevant resumes on the Internet and job search sites.

4) Beamery - recruitment software focused on fast-growing companies. Supported on PCs and smartphones.

5) Hurma System is a recent addition to the HRM / HRIS market. It is a comprehensive solution for HR, recruitment and OKR in one system. From the first contact with the candidate, going through all the stages of the recruitment funnel, to his transfer to the staff, onboarding, adaptation, maintenance and even mood monitoring.

6) Zoho People is an information system where the HR manager can record important information immediately in the interface, without unnecessary details. The system provides the following functions: employee portal, self-service portal, organizational structure, checklists for business processes, etc.

All these programs give you the opportunity to find candidates who best meet your requirements. This facilitates the process of interaction between future employees and the company. The first acquaintance can take place online.

Despite the many advantages of digital technology, we must not forget about the basic aspects of personnel security, which must be performed by all actors that ensure the personnel security of the organization, and it is not superfluous to divide it into three stages [4; 7; 9].

1) Thorough verification of the candidate and his admission to the organization. The inspection should take place at the level of specialists of

the security service of the enterprise, at the level of the personnel manager by interview with the applicant, analysis of personal data, psychological tests. The issue of personnel security should not focus only on the activities of the security service or personnel department, only the interconnected work of employees of these services, as well as the management of relevant units will provide a high level of protection from threats from staff [4; 7;9 ].

2) Control of the employee at the stage of his professional functioning. At this stage, the leading role in ensuring staff security should be played by line managers who are able to monitor changes in employee behavior. The lack of information about the state of the team will not provide an acceptable level of personnel security. You can get this information from team members who are in direct contact with an employee who is interesting to the organization in terms of personnel security. The functions of the security service at this stage are reduced to working with informants, identifying the facts of destructive behavior of employees. Personnel service, in turn, implements programs for the formation of loyalty to the organization, strengthening motivation [4; 7; 9].

3) Ensuring security at the stage of dismissal of an employee. Upon receipt of information that the employee is going to resign, it is necessary: to find out the real reasons for dismissal, the place of possible future work, to identify the employee's motivation, his loyalty to the organization. It is also necessary to find out the amount of information known to the employee, to establish the probability of disclosure of confidential information and to take measures to minimize it. It is important to control the submission of all confidential materials by the dismissed employee. And at the end to instruct on non-disclosure of confidential information [4; 7; 9].

Personnel security of the enterprise is a set of measures that can exist only together. Only in complex work you can get the desired result. New information technologies and automation systems increase the efficiency of personnel security management.

On the one hand, they reduce the workload on the human resources department, and on the other hand, they help to find the necessary candidate faster and more accurately. Special programs, applications and platforms help not only companies, but also the candidates themselves to find exactly the place where they would like to see themselves.

With regard to domestic enterprises, we can say that full automation and work in the digital space of personnel security is still far away. There is now a mixed system that to some extent provides the required level of security.

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## **ENTERPRISE DIGITAL SECURITY MANAGEMENT**

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In the conditions of active development of digital economy, penetration of processes of digitalization in all spheres and branches of management, effective construction of information system of management becomes an important condition of achievement of the set tasks of the organization

development [1]. A special role is given to the introduction of elements of digitalization management modern organizations, as they affect their competitiveness, innovation, automation, information, and create a strong basis for effective business process management and development of the organization as a whole [5].

Digitalization, in a broad sense, is informatization aimed at improving the efficiency of business processes of the

enterprise [6]. According to scientists, the main direction of enterprise development in the context of digitalization is the creation of integrated ecosystems, developing all actors in the industry on the basis of the interaction of business, the scientific community, the state and citizens. For enterprises, the introduction of digital technologies provides an advantage over competitors, serves as a tool for innovation [3].

It is expedient to allocate the basic directions of digitalization of activity of the enterprises: formation of a digital infrastructure; introduction of digital tools; development of digital competencies (Fig. 1). Accordingly, with the emergence of new activities of modern enterprises, the need is formed to ensure their safe implementation.

This necessitates the formation of the latest direction of security – digital security of the enterprise.

In most implementations, digital security is identified with information security. It is defined as a set of measures aimed at protecting the confidentiality, integrity and accessibility of information from virus attacks and unauthorized interference.

Digital security is a collective term that describes the resources used to protect online identities, data, information, digital objects, and other assets. These tools include web services, antivirus software, SIM-cards for smartphones, biometrics, secure personal devices, etc.

A related term is cyber security, as illegal access to information, data or financial resources is called "cybercrime", which in turn creates a need for cyber security. However, there is a difference between digital security and cyber security. Digital security involves protecting your presence on a particular network (data, identity, assets). Cyber security is a broader concept that encompasses a larger area, protecting entire networks, computer systems, and other digital components, as well as data stored within those systems, from unauthorized access.

Many industry professionals use the two terms interchangeably, but in reality digital security protects information, and cyber security protects infrastructure, all systems, networks, and information.

In other words, digital security is a process used to protect the identity of a digital object.

This study proposes to consider digital security at the enterprise level as

a set of resources that create safe conditions for the functioning of digital and physical "digitized objects" of the organization and help improve its efficiency. That is, in this case, the concept of digital security involves not only data protection, but also the formation of an integrated infrastructure with mandatory management to ensure the safe use of digital objects.

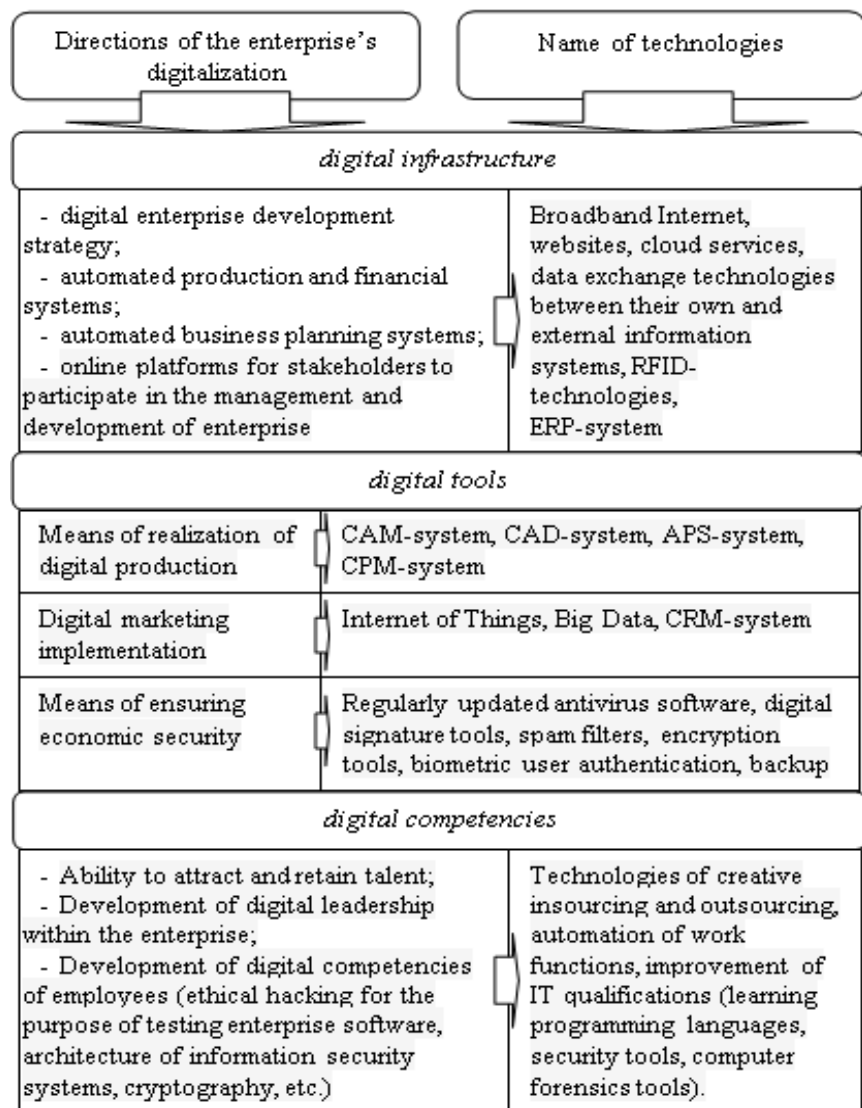


Fig. 1. Directions of introduction of digital technologies at the enterprise [developed by the authors based on 1; 2; 3; 4; 5]

According to the IBS Platformix research, the main components of the digital security system have been identified, including: a single platform for perimeter security systems and access control systems; accumulation of telemetry data base for further analysis; analytical modules for recognizing actions and objects; analytical software for data analysis "on the fly"; biometric identification systems; digital video surveillance to control production processes; machine learning when working with data; specialized software for analyzing the effectiveness of processes; specialized software for integrating physical and industrial security systems with business processes of enterprises. telemetry equipment control systems;

Their percentage of practical application and the need for application at the enterprise are determined and analyzed (Fig. 2).

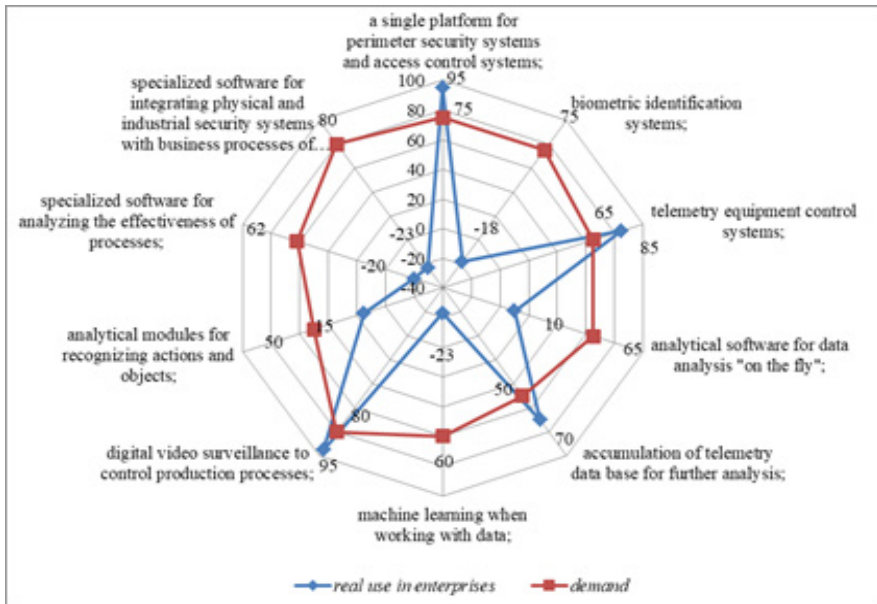


Fig. 2. Demand and applicability of IT solutions in digital security management [developed by the authors based on 2; 4]

The first group includes the most popular and used elements of the digital security system. Both solutions (a single platform for perimeter security systems and access control systems; digital video surveillance to control production processes) are understandable in terms of "how to do them" and have transparent implementation advantages.

The second group of solutions is characterized by high demand and, at the same time, low level of use in enterprises. This is specialized software

for combining physical and information security systems with business processes, as well as the use of biometric identification systems. The reasons why customers are interested but do not actively use these solutions are different. For biometric systems, the problem is that the effect of their implementation, taking into account the technical possibilities, does not yet reach the costs associated with their implementation. But mature security solutions implemented in the management software of the enterprise already exist, but it is still difficult for customers to psychologically decide to implement them. The question is obviously the need to divide the areas of responsibility, i.e. in the structure of the enterprises themselves.

The third group is solutions that are characterized by approximately the same level of demand with completely different levels of use in enterprises. These include telemetry equipment control systems, accumulation of telemetry database for further analysis, analytical software for data analysis "on the fly", specialized software for process efficiency analysis and machine learning when working with data. To unite these decisions in one group allowed a single subject of decisions. All of them involve the use of data collected automatically to make certain decisions in the management of the enterprise. The relatively low level of demand for these solutions is a consequence of the duration of achieving significant economic effects. Installing sensors, accumulating a database, researching and studying this data, testing hypotheses, learning to make decisions – it takes time. In the area of "demand – use in enterprises", the solutions of this group, in our opinion, should in the medium and long term confidently "drift" towards high demand with a high level of use.

Tasks of providing digital can be systematized as the analysis of mechanisms of disturbance of digital space, modeling of destructive actions; digital security management, determination of the zone of stability of the object of protection, analysis of digital risks, development of standards and standards of digital space security; synthesis of means of protection of digital space and control of a current condition and functioning of components of digital system of the enterprise. Accordingly, the modern digital security management paradigm should include:

- review of access control models, taking into account openness, flexibility and distribution. Models should be based on temporal logic;
- adoption of virtualization technology as the most powerful means of protection, which allows to move from the concept of "secure system" (from a fixed set of threats) to the concept of "system with predictable behavior";
- implementation of the separation information principle of processing environment and means protection;
- construction of theoretical bases of dynamic protection management (adapting to current threats) as object of automatic regulation with the

concept of stability zone, consequence (inertia) by dynamic characteristics;

- acceptance of openness systems (Internet connection) as an integral property and construction of protection taking into account this development bases an estimation of elasticity (system adaptability) and scalability.

The protection paradigm during development should be based on the following 10 principles:

- minimizing the attack surface. When adding new features, you need to analyze how they will affect the overall safety of the product and what mechanisms can be added to minimize risk;
- secure default settings. Enhanced security should be the default mode for users. At the same time, they can be given control over the possibility of reducing their safety requirements, while informing about the possible risks and consequences of such actions;
- minimum proxy. Each account must be given the minimum credentials needed to run their business;
- segregation of duties. Adherence to the system of creating and using different user groups according to their responsibilities;
- multilevel protection. One level of control is good, but more levels of control that allow you to deal with risks in a more diversified way are even better. The more efficient the structure of your security levels, the more difficult it is for an intruder to exploit system vulnerabilities, even if they exist;
- minimizing the negative impact of system failures. The software may have errors that will cause it to malfunction. But the task of the digital security management system is to ensure that these failures in the system are not used by attackers;
- transparent process of cooperation with third-party companies. Using third-party services is often a business necessity. But for secure cooperation and protection of critical customer information, it is necessary to introduce a transparent process of interaction with such providers, based on best global practices and approaches to outsourcing;
- choosing a simple and effective solution. It is desirable to avoid the use of excessively complex approaches and the use of redundant functions when there are simpler and more effective solutions;
- digital security audit. Ensuring registration and analysis of all important events related to system security;
- do not rely on concealing the fact of vulnerabilities. It is sometimes difficult to hide something, but it is much easier to reveal hidden vulnerabilities, especially for an experienced attacker who wants to break into the system;
- constant checking of the system for the presence of critical security vulnerabilities and their timely elimination [4].

The modern world requires companies to have a high level of adaptability to environmental conditions. This applies to all aspects of work, both business and social. The ability to quickly change processes, including the rules of security systems, is achieved through the use of digital technologies. At the same time, not much time is given to the digitalization of enterprises and security services and a limited resource is allocated. This necessitates the formation of an affordable, but at the same time, effective digital security management system of the enterprise.

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