

Ministry of Education and Science of Ukraine  
Poltava State Agrarian Academy

# **MANAGEMENT OF THE 21ST CENTURY: GLOBALIZATION CHALLENGES**

monograph

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



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## PREFACE

The end of XX and the beginning of the XXI century are characterized by global management specialists as times of violent changes in the management paradigm. Globalization and regionalization are the main processes of the development of the modern world, which not only significantly affect economic life, but also cause political, social and even cultural and civilizational consequences. These consequences are increasingly felt by almost all countries of the world. Among them, Ukraine, which is fully conscious, actively and purposefully moves towards integration into the world community. Globalization as the emergence of world-wideness, manifests itself, first of all, in the formation of a single socio-economic, political, cultural and informational space. This process of social change in recent decades consists in the formation of a single global market, information openness, the emergence of new information technologies, as well as in increasing the global cultural connection. Governance in the process of globalization allows countries to share experiences, using the achievements made and the difficulties they face. This process contributes to the mutual enrichment of ideals, cultural values and aspirations, taking into account the recognition of cultural diversity. As a tendency to global development, globalization is a phenomenon that is defined by the market, and not by state forces, and means homogenization of life.

The formation of new integration economic relations in Ukraine and the intensification of competition objectively force executives and managers to radically change the system of views on enterprise management in an unstable and difficult predicted external environment. Today, the main task is to adapt not to the changes in market conditions of operation, but to the speed of these changes. In this regard, a management system that is capable of responding adequately and in a timely manner to changes in both the internal and external environment is necessary. Therefore, this problem is given more and more attention in theoretical researches of scientists and practical activity of business entities.

The philosophy of socio-economic development of Ukraine at the present stage is to know the underlying factors of national and general civilization progress. These new ideas will enable the information, intellectual, organizational, material and financial resources of Ukraine to be used for the civilization jump and solve urgent problems of time. This forces to focus attention on the main directions of management development using autarkic cycles while providing a sufficient level of comfort of life; creation of social and organizational structures that will operate on the principles of self-organization and will carry out a coordinating and organizing role of overcoming crisis phenomena in society.

Taking into account, that traditional management, as a mechanism in his different models, forms, systems exhausted itself, as does not assist the decision of problems of globalization of development of civilization, there was an objective necessity to set forth the paradigm of management of XXI of century – to the management

essence of that consists in opposition to the processes of self-destruct; conditioning for harmonization of self-regulation open system: human, organization, company; conditioning for realization of creative potential of everybody; forming and introduction of management mechanism is on all levels for any socio-economic open system.

The researches, sanctified to the theoretical and methodical aspects of forming of directions of development of modern models of management, their introduction and realization taking into account possibilities of home economy, acquire at these terms of the special actuality. Questions related to the management at macroeconomic level and at the level of enterprise are updated on theoretical, and on practical levels, that is confirmed by scientific positions of experience authors and beginners, and provides a scientific discussion for researchers, and for practical workers.

A collective monograph «Management XXI century: calls of globalization» is devoted to these and other problems. Progress of management theory trend on the basis of analysis of theoretical and methodical groundwork scientists and practical workers highlighted in the collective monograph create possibilities for the practical use of the accumulated experience, determine maintenance of management, and their realization must become basis for the choice of reference-points of the further researches sent to the improvement of management theory. In a collective monograph considerable attention is spared by the task of practical character, related to forming of organizationally-economic mechanism of management organizations in the conditions of globalization, by development of methods, principles, case frames taking into account modern scientific approaches and to the consolidated informatization of business processes of modern enterprises.

In a monograph is devoted the results of researches and scientific positions of authors of different countries are expounded in relation to such aspects of management, as: management organization as by the socio-economic system; an innovative, investment and informative management is in the system of modern enterprise; a skilled management is in modern organization; branch and regional aspects of modern management; public management; agrarian management; management of tourist business; international management and management of foreign economic activity; management of risks, by safety and competitiveness of enterprise; marketing management; the modern going is near a management higher education.

Authors are overcome the wide enough circle of problems - from forming of conceptual principles of management of development of the state potential to the applied aspects of management his separate subsystems and subjects of manage.

A monograph consists of two divisions and 70 subdivisions, each of that is independent enough on maintenance problem questions.

Structure of monograph, namely, presence of two parts: «Development of modern paradigm of management in Ukraine: national and globalization aspects» and «Management the modern socio-economic systems in the conditions of revivifying

and world integration» helps to be concentrated both on the conceptual questions of forming and development of economical, social environmental constituent and problems of providing of process of practical application of the worked out case frames.

Preparation of collective monograph within the limits of two research themes: the «Macroeconomic planning and management of higher education of Ukraine the system: philosophy and methodology» (state registration number 0117U002531); «A management the socio-economic system in the conditions of national and globalization calls» (state registration number 0117U003102) underlines not only scientific but also practical orientation. The results of researches are stated in a collective monograph by authors present a scientific and practical value.

Positive party of collective monograph are the system and logic of construction, simplicity and availability of exposition of material, presence of examples and illustrative material.

We hope that the monograph will become another step to the scientific decision of problems of forming of effective control system in the difficult terms of globalization.

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# **PART 1. DEVELOPMENT OF MODERN PARADIGM OF MANAGEMENT IN UKRAINE: GLOBALIZATION AND NATIONAL ASPECTS**

## **RECENT TRENDS IN THE DEVELOPMENT OF FOREIGN ECONOMIC SECURITY OF UKRAINE**

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In modern conditions of geopolitical and geo-economic instability, as well as instability of the world financial system against the backdrop of global disasters, the notion of economic security becomes particularly important.

Within the framework of interstate relations, it is expedient to differentiate the economic aspects of the national and international security. Foreign economic security today is an integral part of Ukraine's economic security. The proper state of foreign economic security is designed to provide favorable conditions for the development of the national economy through its active participation in the world division of labor. The rapid development of market relations, the intensification of export-import operations, the total strengthening of international economic cooperation and integration processes throughout the world are accompanied by an aggravation of economic competition in the domestic market. Consequently, all these tendencies actualize an issue of ensuring the economic security of the state and its core components.

Issues related to the essence of foreign economic security as an important element of the national security system are not sufficiently developed in comparison with the category "economic security", various aspects of which are widely represented in recent scientific works and publications.

This determines the urgency and need for further research on trends in the changes in foreign economic security.

Traditionally, in the domestic and foreign scientific literature, the concept of "foreign economic security" is hardly used in the literal sense and is often interpreted as an integral part of the national economic security. In general, most experts define this concept as a specific type of activity, which is explained by the strengthening of globalization processes and the need for countries to enter international markets and compete there. Today, there is no clear understanding of foreign economic security in the Ukrainian legislation. The first move in the legislative aspect for the foreign economic security understanding is the Law of Ukraine "On Foreign Economic Activity". The given concept is indirectly explained by the following principles

of foreign economic activity development, as enshrined in the Article 2 of this Law: sovereignty, freedom, legal equality and non-discrimination, the rule of law, protection of interests of the business entities, and the equivalence of exchange [1].

This indicates the incompleteness of methodical processing and the need for further research on the notion of foreign economic security (Table 1).

*Table 1*

**Etymological analysis of the concept of “foreign economic security” origin**

Authors	The essence of the concept
1	2
Lipkan V., Lipkan O. [2]	Foreign economic security is an integral component of economic security or a targeted influence of any management entity on threats and dangers in which state, non-state and international institutions and organizations create the necessary and sufficient conditions for reducing external dependence, overcoming discrimination, dictating, and subordination to the interests of other countries.
Methodological recommendations for calculating the level of economic security in Ukraine [3]	Foreign economic security is a state of conformity of foreign economic activity to national economic interests, which ensures minimization of state losses from negative external factors and creation of favorable conditions for the economic development due to its active participation in the world division of labor.
Ivanchenko V. [4], Vlasyuk O., Sukhorukov A., Nedin I. [5]	Foreign economic security can be described through the term “foreign trade security”, which is the ability of the state not only to withstand the impact of external negative factors and minimize the damage caused by them, but also to use the participation in the world division of labor to create favorable conditions for the development of export potential and rationalization of imports, and, finally, to ensure compliance of foreign trade activities with national economic interests.
Varnaliy Z. [6], Heiets, V. [7], Sukhorukov A. [5]	The external economic security of the state is considered to be the country’s ability to maintain the competitiveness of the national economy, to protect effectively its own economic interests, to resist external economic threats, and to use competitive advantages in the international division of labor.
Bogomolov V. [8]	Foreign economic security can be achieved by increasing competitiveness, adapting the economy to the current conditions of the world market development, ensuring governance and an adaptive sensitivity to the protection and liberalization policies in order to ensure sustainable economic growth as a whole.

Continuation of the Table 1

1	2
Chesnokov A. [9]	Foreign economic security is the ability of the state through a set of measures in the foreign economic sphere to ensure the sustainable development of the economic system and its resilience to external negative factors and manifestations of globalization changes in the world economic system. In order to realize the existing national economic interests, the author proposes to allocate horizontal (social, legal, financial, environmental and personnel) and vertical (export, import, credit and investment) components of the foreign economic security.
Gerasimchuk Z., Vavdiyuk N. [10]	The author does not directly define the essence of the notion of foreign economic security. He recognizes this term as a separate functional component of assessing the level of economic security of the state and discusses the level of external economic openness in the country as the basic characteristic of the foreign economic security.
Oleksiyyenko M. [11]	The author defines foreign economic security solely on the basis of a general theory of systems and regards it as a subsystem of the international economic security aimed at ensuring the protection of the country's economic interests as a socio-economic system, as well as a high level of implementation of its foreign economic potential.
Yaremko L. [12]	<p>Foreign economic security is the ability of the socio-economic system to protect its common and specific interests in the context of globalization, which include as follows:</p> <ul style="list-style-type: none"> <li>– ensuring stable receipts of goods that are classified as critical imports and are not available in the territory of a particular country;</li> <li>– elimination of environmentally harmful consequences of the functioning of industry and urbanization;</li> <li>– overcoming the depressiveness of the territory, creating labor-intensive industries in order to absorb surplus labor force.</li> </ul>
Senchagov V. [13]	<p>Without defining the essence of foreign economic security, the author considers the system of international economic security as a state of the world economy and international economic relations, when stable economic development of states is ensured and conditions for mutually beneficial economic cooperation are created that exclude the illegal use of economic force.</p> <p>The system of international economic security must protect the state from the following types of threats:</p> <ul style="list-style-type: none"> <li>– spontaneous deterioration of the conditions of the world economic development;</li> <li>– the undesirable consequences of economic decisions that have been taken without proper agreement between countries;</li> <li>– conscious economic aggression, which is manifested by other states.</li> </ul>

Continuation of the Table 1

1	2
Klimchik V. [14]	Foreign trade security is a synergetic concept that comprehensively reflects the generalized state of its main components. Therefore it is expedient to carry out its research through a system of indicators, national economic interests, factors and threats.
Oliynikov E. [15]	Foreign economic security is a set of international conditions for the existence of agreements and a set of different institutional structures in which each member state of the world community will be able to freely choose and implement its strategy of social and economic development without experiencing external pressure. This is necessary to provide each member state of the world community with the proper conditions for establishing mutually beneficial relations with other countries and to ensure the protection from external interference.
Shestopalov G. [16]	The author notes that the key factor that ensures the need to consider foreign economic security as an independent category and also as a separate direction in the national security system development is the ability of the state to withstand the influence of negative external factors and to minimize the harmful consequences caused by them, to take an active part in the world division of labor from with the aim of creating favorable conditions for the development of the economy and ensuring the compliance of foreign economic activities with national economic interests as a whole.
Shvidanenko O. [17]	Foreign economic security is an integral part of both international and national security of the country, reflecting the state of effective use of corporate resources to prevent threats and to ensure the stable functioning of the enterprise both in the domestic and foreign markets.

Summarizing the essence of the notion of “foreign economic security”, it is worth noting that its etymology depends on the research conducted by scientists in the field of national and economic security development. Foreign economic security is considered by scientists to be the state of a certain object, as well as the condition for sustainable economic development, and even a result of certain managerial actions.

However, in almost all the above definitions of foreign economic security, it is possible to outline the common features: the main goal of this concept is related to the economic growth; the total aim of the foreign economic security is the protection of national interests in the foreign economic sphere; the methods used in this process are concerned with the level of competitiveness increase.

On the basis of the above definitions and the behavior of a certain country when creating conditions to ensure an effective foreign economic activity, it is expedient

to distinguish three main approaches to the definition of this concept: satellite, autonomous and situational ones.

The satellite approach, as follows from the primary meaning of the word “satellite”, defines foreign economic security, as a formally independent but actually subordinate notion. In this context, security should be viewed from the perspective of competitiveness and sustainability as the significant economic concepts of nowadays. Obviously, foreign economic security is the ability of the national economy to compete in foreign markets and to be resistant to external influences.

In general, the satellite approach is identified with the market approach, which argues that the state is not able to improve its own security. This is impossible, since external factors are exogenous, that is, they are outside the sphere of the national government influence. One of the modifications of the satellite approach is a composite approach, in which foreign economic security exists only as a component that includes energy, food, raw materials, migration, monetary, financial, food, and environmental security.

On the contrary, autonomous approach, as characterizes the interpretation of the word “autonomous”, defines foreign economic security as an independent concept with its own unique content. Therefore, the foreign economic security acts as the ability of the national economy to counter various threats and meet different challenges.

Autonomous approach acts as a state approach, which provides that regulation of foreign economic security can not be addressed to the market, it should be provided only by the state government. In this sense, an autonomous approach is a managed approach, which means ensuring foreign economic security because of state intervention.

And, finally, the situational approach makes it possible to define foreign economic security as the competitiveness of the national economy, which allows to provide protection against threats and to develop steadily on this basis. This definition contains four basic concepts: competitiveness, sustainability, threats, and challenges.

The first two concepts define a wide range of the investigated and developed problems, while the content of the above definition focuses on the concepts of threats and challenges only [18].

Thus, the multiplicity of approaches to the justification of foreign economic security, its main concepts and aspects can be explained by the multifaceted nature of this category, but also by the fact that each author offers his own understanding of the essence of this concept, which greatly depends on the context and the research objectives.

In this regard, the analysis of any problem of national or external economic security should begin with an analysis of risks, challenges and threats (Figure 1).

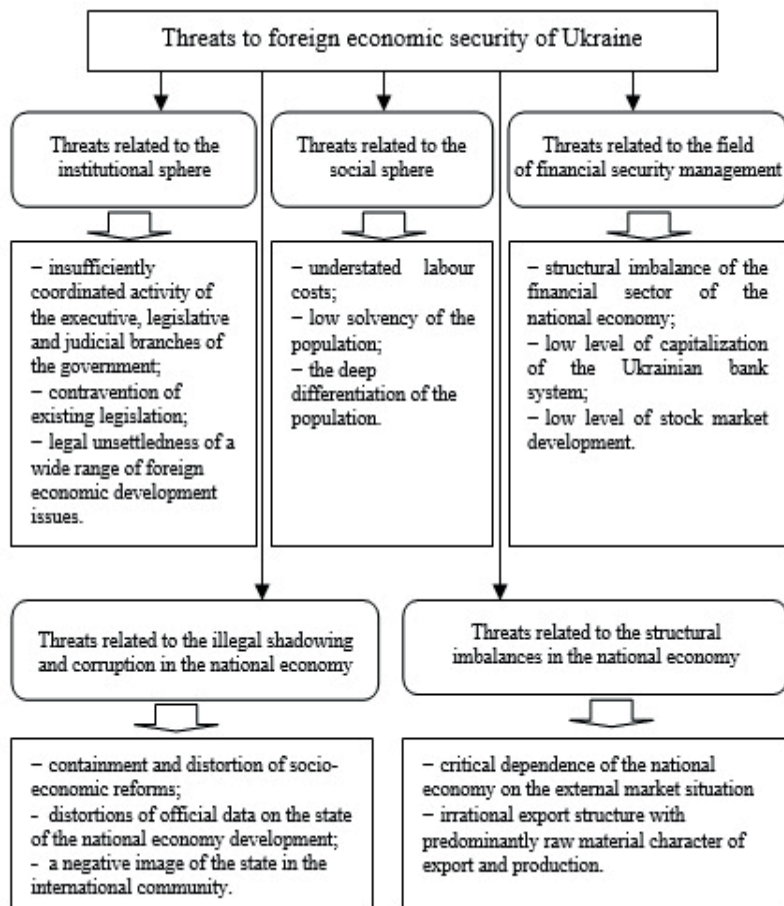


Fig. 1. The main threats to foreign economic security of Ukraine [developed by author on the basis of the sources: 4, 6, 7, 8, 19]

However, the factors that are caused by foreign trade operations have the greatest impact on the state and the level of foreign economic security and, accordingly, the level of the national economic security. Based on the analysis of the trends in the development of Ukraine's foreign trade provided by the Department for International Trade and Economic Cooperation and European Integration, the main threats to ensuring the necessary level of foreign economic security of Ukraine in the trade sphere were identified by author (See Figure 2).



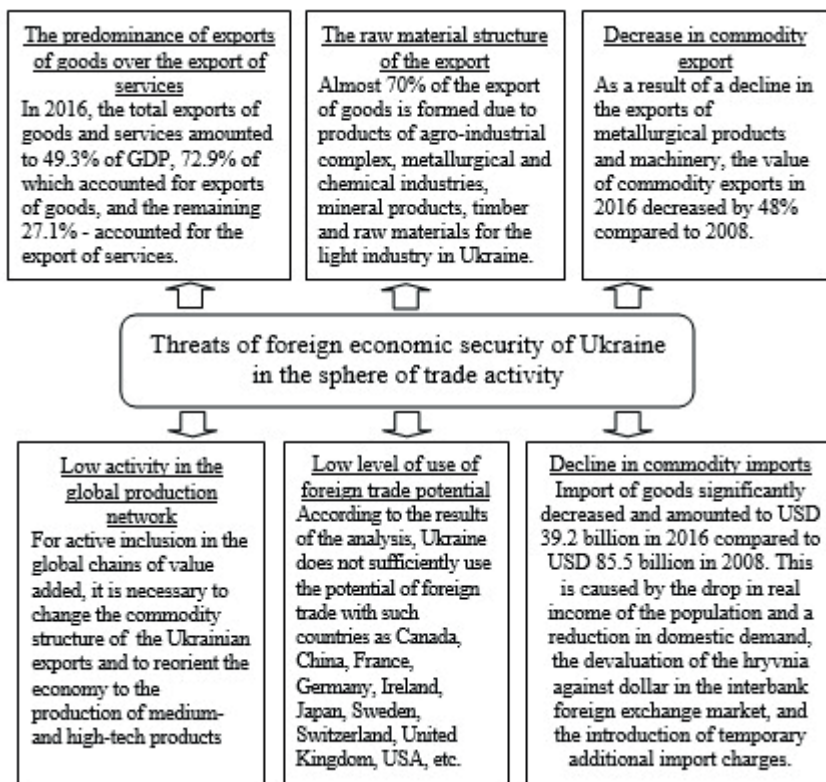


Fig. 2. Threats of foreign economic security of Ukraine in the sphere of trade activity  
[developed by author on the basis of the source: 20]

To ensure foreign economic security of Ukraine, the highest priority should be given to the following tasks of the state policy in this field:

- the optimal combination of state protectionism and free trade policy;
- the tax support of the domestic commodity producer;
- the maximum use of the advantageous geographical position of Ukraine regarding the transit through its territory of cargo from abroad and energy carriers;
- the substantial improvement of the work of the customs authorities with a view to preventing smuggling by the subjects of foreign economic activity;
- the suppression of illegal export of capital from Ukraine;
- the active attraction of foreign investments;
- the diplomatic and political support of foreign economic activity;
- the creation of an economic system compatible with the West European ones, which will facilitate the establishment of the effective relations with the developed countries;

- the development of various forms of international economic cooperation;
- the ensuring of a positive balance of foreign trade balance of the country;
- the diversification of exports and imports.

Thus, the conducted system research of the recent trends in the development of foreign economic security of Ukraine has shown that the external economic security of the state can not be objectively investigated without taking into account its close connection with various levels of economic and national security of the country.

Having determined the main external economic threats of Ukraine, it is necessary to develop a system of indicators for determining the level of external economic security of the country, which is expected to become one of the promising areas of scientific research in this field.

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## **THE FUTURE CHALLENGES OF THE EUROPEAN DANUBE REGION STRATEGY**

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In the Presidency Conclusions of 18 June 2009, the European Council requested the Commission to prepare an EU Strategy for the Danube Region (EUSDR). The Commission adopted a Communication on 8 December 2010 (with an Action Plan identifying specific actions and examples of projects in 11 priority areas), which was then endorsed in April 2011 by the Council.

The European Danube Region Strategy (EDRS) was adopted by the Hungarian Presidency on 30 June 2011 in Budapest. It was the second EU macro-regional

strategy, which followed the EU Strategy for the Baltic Sea Region. A first Report to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions concerning the EUSDR was issued on 8 April 2013.



Fig. 1. EDRS countries  
From <http://www.danube-regio.eu/>

Countries in the EDRS area:

- 9 EU Member States: Austria, Bulgaria, Croatia, Czech Republic, Germany (Baden-Württemberg, Bayern), Hungary, Romania, Slovakia, Slovenia
- 3 additional connecting countries: Bosnia and Herzegovina, Montenegro and Serbia
- 2 neighbours: Moldova and the Ukraine (4 districts)

A complex approach to the Danube area required new methods for the development of the strategy. As a versatile corridor, the Danube River emphasizes the trans-national character of strategy creation. Obviously, the Danube also areas appear in Hungary's National Development Plan documents and policies.

National interests may differ from country to country, in specific issues (Lentner, 2007). In addition, different priorities may be included in the separate development programmes and strategies for the Danube NUTS2 and NUTS3 regions. The Danube-Cities (ESPON categories) are developing at a rapid pace, especially in the metropolitan areas.

Therefore, the elaboration of the Danube Strategy could not be part of a traditional planning process with a designer workshop finding the optimum vision, collects policy expectations and sets professional requirements. A continuously (or at least regularly) operating international design system was needed. Some of the projects in the INTERREG programmes III and IV indicate positive experiences

in this area (Veres, 2010a; 2010b). Demand has increased for forums not created for unilateral information and opinion formation but for the purpose of discourse. This was the purpose, for example, of the Danube-Region Cohesion, Interregional International Scientific Conference organised at the University of Dunaújváros already on four occasions.

The Danube is an important link between the European Union and the countries acceding the EU. Consequently, the European Union also plays a major role in the development of the Danube as one of Europe's most important and busiest waterways. A series of international scientific conferences provided opportunities in Hungary and in the neighbouring countries for the participants to familiarize themselves with the social and economic as well as natural developments taking place along the Danube, and to identify possible goals and directions in improvement. This allows the Danube countries, regions and communities can play a significant role in Europe's development (Veres, 2010c).

The discourse-triggering conferences resulted in the exploration and enhancement of opportunities for cooperation between the countries along the Danube, in the generation of new joint projects, and in the expansion and promotion of international and interregional relations (Veres, 2016).

Summary of the EDRS Action Plan. In early June, 2010, DG REGIO, the body in charge of the preparation of the Danube Region Strategy on behalf of the European Commission, delivered a consultative version of the Action Plan for the Member States on the basis of previously submitted national contributions and stakeholder conferences. This was the basis for the subsequent bilateral and multilateral negotiations with Member States and for the legitimacy of actions selected for the cooperation (European Commission, 2010).

The EU Strategy for the Danube Region was published in two documents: a Communication from the European Commission to the other EU Institutions, and an accompanying Action Plan, which complements the Communication. The projects are considered to be illustrative, providing examples of project types or approaches encouraged in general. The essence of the procedure is that the actions<sup>5</sup> or projects<sup>6</sup> included in the Action Plan are implemented by the Member States and the stakeholders on the basis of the subsidiarity principle.

The Action Plan sets clear priorities, and provides the information required for implementation and follow-up. The priorities are broken down into well-defined actions, with sample project proposals for the presentation of the supporting actions. As a common feature of the actions specified in the Action Plan, they all support the existing EU policies, including the EU's strategic guidelines outlined in the EU 2020 document, the integrated approach based on the principles of sustainability, social cooperation and a number of other effective EU regulations.

Despite the fact that the Action Plan serves stability for a certain period, the thematic priorities may change over time, and so the actions and projects may also be reviewed, transformed or replaced (this is called. a "rolling" plan).

The EDRS adopted in 2011 on the technical basis of the Action Plan eventually identified 11 priority areas (Table 1). Table 1 shows that Hungary played an important role in coordination and was assigned priority areas PA2, PA4, PA5, representing a professional challenge and responsibility, and requiring increasing cooperation.

Table 1

EDRS pillars and priority areas					
Policy coordination development along four pillars and priority areas 11					
Connecting the Danube region to other regions			Creating prosperity in the Danube region		
PA1/a	Mobility- inland waterways	Austria and Romania	PA 7	Knowledge society	Serbia and Slovakia
PA 1/b	Mobility- rail, road and air transport	Serbia and Slovenia	PA 8	Competitiveness	Baden-Württemberg and Croatia
PA 2	Sustainable energy	Czech Republic and Hungary	PA 9	People and skills	Austria and Moldova
PA 3	Culture and tourism	Bulgaria and Romania			
Environmental protection in the Danube region			Strengthening the Danuba Region		
PA 4	Water quality	Hungary and Slovakia	PA 10	Institutional capacity and cooperation	Austria and Slovenia
PA 5	Environmental risks	Hungary and Romania	PA 11	Security	Bulgana and Germany
PA 6	Biodiversity, land, air and soil quality	Bavaria and Hungary			

Source: Gábor Jenei (2017)

- In the period between 2014 and 2020, the criteria set out in the objectives of the Strategy are enforced in an organised framework. There are best practices and cross-border cooperation programmes inherited from the 2007-2013 period.

As for other opportunities, centrally managed funds are available from Brussels, such as the Life+, the Horizon 2020, and the European territorial cooperation programmes, including transnational programmes, such as the Central Europe Programme and the Danube Operational Programme (see Figure 2).

Many say that a significant portion of these funds were already available in the 2007-2013 period, and, although in a limited amount, they were also available in the last two years. However, it is important to note that partnerships and the frameworks of cooperation which have developed their concepts in accordance with criteria set by the Danube Region Strategy and are actually be able to have access to these resources have only evolved recently.

In order to improve the flow of information, in 2015 a project financing conference was organised by the Hungarian Ministry of Foreign Affairs and Trade for Hungarian stakeholders who wish to implement projects in relation to water management and energy in the next period.





Fig. 2. Financing Toolkit relevant and available for the Danube Region Strategy in Hungary

Source: Gábor Jenei (2017)

We have established strategic partnerships with Germany, in particular the Baden-Württemberg region, and with the Czech Republic and non-EU countries. The Strategy has been highlighted in various operational programs, in different funding sources and as a new element in bilateral cooperation.

As an added value to the macro-regional approach, countries have jointly defined the gas market infrastructure developments to be implemented in the 2014-2020 period using financial resources and have succeeded in bringing these outcomes and modelling outcomes into the various Brussels decision-making processes.

This model has been able to show how to achieve a particular infrastructure element affecting the price of gas in some countries in the Danube region. The construction of gas storage capacity can be highlighted in such forward-looking job. Almost all countries around Hungary, and in the Danube Region - talking to EU countries - indicated that they would like to give priority to gas storage capacity on the expense of resources of the 2014-2020 development period.

The analyses showed that as of now there are 4 billion cubic meters of excess capacity, and if anticipated developments will be realized, it will increase this capacity to 9 billion cubic meters.

The new role of macro-regions. In 2015 the European Parliament made a critical and analytical overview of the new role of macro-regions in the European territorial cooperation (European Parliament, 2015) and concluded that macro-regional strategies have become a crucial concern in shaping the European territorial

cooperation in the post-2013 cohesion policy. The European Union is currently implementing two macro-regional strategies: the EU Baltic Sea Strategy and the EU Strategy for the Danube Region. In October 2014, the EU Adriatic and Ionian Strategy was also adopted. In addition, recommendations have been made for and debates are ongoing about the development of similar strategies for other macro-regions, especially coastal ones, the Alpine, the Carpathian, the North Sea, the Black Sea, the Western and Eastern Mediterranean Sea and the Atlantic Arc regions.

Developments in concepts and legislation related to macro-regional cooperation. The European Parliament first discussed the conceptual definition of macro-regions and macro-regional strategy, the latter called an increasingly important area of governance for European territorial cooperation. Macro-regional strategies are important tools not only for regional policies but also for foreign policy. The future of macro-regional strategies are discussed against conflicting views on post-2013 cohesion policy and a changing regulatory framework. The European Parliament's comments clearly point towards support to a territorial and contractual approach in macro-regional cooperation, in line with the Europe 2020 agenda. It was noted that the added value of macro-regional strategies lies in promoting the involvement of neighbouring countries, the creation of territorial synergies and the reduction of regional disparities.

The macro-regional strategies under consideration are analyses of the Carpathian Region, the North Sea, the Black Sea, the Atlantic Arc and the Strategy for the Western and Eastern Mediterranean. At the current stage, the concepts of certain strategies have not yet been clearly linked to specific needs or specific actors / partial areas, while in the case of other strategies, due to the high level of social and economic cohesion, there is still considerable doubt concerning the need for macro-regional cooperation. Contrary to other strategies, the feasibility of macro-regional cooperation can be questioned because of the social and economic inequalities and political instability.

The classification of macro-regional strategies is based on an in-depth assessment of the need for cohesion as a means of achieving a macro-regional level of social, economic and territorial cohesion as a tool for cohesion in post-2013 cohesion policy. According to the analysis, macro-regional strategies should be divided into three groups: 1) macro-regional strategies that function as possible means of the EU's foreign policy (Mediterranean and Black Sea Strategies); 2) macro-regional strategies used for combatting development inequalities (Danube Region, Baltic Sea, Adriatic, Ionian and Carpathian regions) and 3) macro-regional strategies that serve as potential tools for exploiting territorial synergies (Alpine, Atlantic and North Sea strategies).

Conclusions and policy recommendations. Added value: The added value of macro-regional strategies for European territorial cooperation and cohesion policy needs to be assessed on the basis of the nature of the reviewed macro-region. According to the three elaborated approaches, the different categories of macro-



regional cooperation classified in different categories are expected to have different added values.

**Monitoring and evaluation:** The preliminary assessment of political and financial needs and capabilities should be given priority in assessing the feasibility of future strategies;

**Technical assistance:** The European Parliament should continue to provide financial support to transnational activities, while also carefully assessing in this respect what and how they can fulfil in the next few years;

**Regulatory framework:** The European Parliament should examine the idea of conditionality of macro-regional cooperation and the usefulness of European Grouping of Territorial Cooperation in macro-regional strategies in greater depth in the coming years.

**Evaluation of progress in the Danube Strategy.** Numerous projects were launched or improved as a result of the EUSDR. These include: the master plans on Fairway rehabilitation and maintenance and on LNG navigation; the creation of nature protection networks and the development of common methodologies for the assessment and management of natural risks due to the climate change; and the setting up of a network for improving security on the Danube River (European Commission, 2016).

The EU Strategy for the Danube Region has clearly improved cooperation culture, linking stakeholders and dovetailing existing institutions to share knowledge and experience. The ministers of transport at the Ministers' Meeting of the Danube Region received high-level political support to ensure better management in Danube shipping. The achievements of the cooperation culture and activity shown as an important goal in the Danube Region Strategy also fed through as spectacular results in automotive industrial cooperation. The experience gained in the European Union and more specifically, in the Danube Transnational Programme has contributed to the development of a Cooperation in Automotive Higher Education and Research in Hungary, the evolution of a coordinated innovation activity, and network cooperation (Tóthné Borbély, 2013).

The Danube Financing Dialogue is an example of a match-making platform offered by the strategy for project promoters and financing institutions to discuss issues and identify suitable solutions related to financing projects in the region (Lentner, 2015a).

The EUSDR has also made the governance system more effective by strengthening coordination between policies and institutions at a national level. It has facilitated reaching out to relevant stakeholders at both national and local levels, and continued dialogue with civil society organisations (Lentner, 2015b).

Another important area where the EUSDR has made a genuine contribution included the EU enlargement and neighbourhood policy agendas. It has helped to intensify thematic cooperation with the five participating non-EU states and to bring stability to the area through solid networks and partnerships. Relevant initiatives

include the setup of the first European Grouping of Territorial Cooperation with a non-EU country (Hungary and Ukraine), and the establishment of a new coordination scheme in 2015 to allow Moldova to participate in the strategy. Serbia has also taken an active part in coordinating two of the strategy's priority areas.

The implementation of the EUSDR has been supported by the Danube Transnational programme. The latter covers the same geographical area, provides financial support to specific transnational projects and supports the strategy's governance. In 2014, the 14 participating countries jointly set up the Danube Strategy Point (DSP), which became operational in June 2015. The DSP has mainly been active in monitoring, communicating and providing support to priority area coordinators and to cooperation between priority areas.

Irrespective of promising initial achievements, the EUSDR would benefit from a number of specific policy and operational measures, such as the continued integration of the transport and energy infrastructure, actions to counter water pollution, natural risks, common labour market and education policies, competitiveness measures, in particular for SMEs, and measures addressing demographic challenges and brain drain. The security dimension remains important as is the need to develop public administration capacities.

In addition, new challenges have been faced in the past two years, for example relating to migration flows, global security and terrorism (Veres, 2017).

The administrative capacity available for the arrangement of implementation and for improving cooperation remains an issue, particularly in non-EU countries. This still requires appropriate responses at both national and regional levels.

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# MAIN TENDENCIES AND ISSUES OF UKRAINIAN HEALTH CARE SYSTEM REFORMATION ON THE MODERN STAGE OF ECONOMIC DEVELOPMENT

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One of the most important tasks, put before the Ukrainian society, is increasing of Ukrainian economical competitiveness and wellbeing of Ukrainian population. Hence, a lot of reforms in the different spheres of economic, social and legal policies are provided in the modern stage of Ukrainian development. By 2018, one of the most urgent reforms in Ukraine is the health care system's reformation.

Nowadays the complicated socio-economic, political and demographic changes are taking place in Ukraine. To date, according to the non-official statistical data, the preliminary appraisalment of the total number of population is about 29 millions, i.e. in comparison with 2010 it has decreased 1,58 times or 16,96 mln. people. According to the official statistics, the dynamics is not such bad, but nevertheless, there are significant problems with demographics: by 01.02.2018 there are 42, 39 mln. people in Ukraine.

Such reduction of population is caused by military actions on the East of Ukraine (Donetsk and Luhansk regions), massive migration processes (about 7 millions emigrants per year), high mortality rate, low fertility and population ageing. According to statistical data (2017), in the last decade in Ukraine, more than 1.5 thousand diseases account for 1 thousand people.

Thus, these difficulties have a significant impact on the entire health system's activities, regional health authorities, and each medical institution. Hereby, one of the most important priorities of Ukrainian state policy is the preservation and strengthening of the population's health on the basis of a healthy lifestyle formation and increasing the medical care's availability and quality for the population.

The actuality of the research topic arises from aforesaid, which is defined by finding out the most perspective ways of Ukrainian health care system reformation and implementation of the best international experience into this process.

Therefore, the analysis of the best practices of managing health care and the main procedures of their implementation into Ukrainian realities is one of the main tasks of this research.

Nowadays a lot of researches are dedicated to this problem. Among the most prominent ones are the scientific works of the following Ukrainian and international

scientists E. Kovzharova, M. Fotaki, G. Plimmer, M. Shcherbynina, Yu. Skyrda and so on.

As it was said in the target setting part, we have to analyze not only the national implementation mechanism of health care system's reformation, but the main gears of health care system's realization worldwide; implementation of their most efficient parts into our reformation process remains the underdeveloped scientific issue.

The main goal of this research is to analyze the procedures of Ukrainian health care system's reformation and to determine the most useful mechanism of their realization, considering the best international practices. The study has challenged the assumption that the modern Ukrainian financial model of the health care system needs to be revised and reformed with the purpose of its improving.

Despite the diversity of forms of medical care, today there is no country that would be fully satisfied with its own health care system [4]. Ukraine is no exception. For the entire formative period of Ukrainian independence its governance has been finding the best ways of the health care system improvement.

The following classification of the models of the health care system exists in the Health Economics: (1) national health model (Beveridge model), directed on the high-grade preventive and medical process, characterized by universal health care coverage of all citizens by a central government; (2) social insurance model (Bismarck model), grounded on the comprehensive compulsory health insurance; (3) private insurance model, based on the out-pocket financing, characterized by employment-based or individual purchase of health insurance financed by individual and employer contributions [5, p. 26-30].

Ukrainian health care system was related to the Semashko health care system (administrative state model), as the most post-soviet health systems, characterized by the planned economy and centralized mechanism of administration and control. But nevertheless, in recent years corruption and bureaucracy was peculiar to this model; the profession of "physician" has long been not considered prestigious, due to the low level of salaries of specialists in this sphere. Thus, the old Ukrainian health care system has been shown its inability in the conditions of the market economy. So, one of the main issues of the modern reformation process is to decide these problems.

In accordance with the new concept of the health care reformation, starting from January, 1st, 2018, it will involve the following spheres of Ukrainian health care system: (1) an autonomization of medical institutions; (2) the rural health care; (3) the primary health care; (4) the secondary health care; (5) the tertiary health care; (6) e-Health. The transitional period of the reforming will last for up to January, 1st, 2020. The main stages of reform are presented in the table 1.

Table 1

**Main stages of reforming in Ukraine**

Stage	Period	Scope of action	Main actions
1	From January, 1st, 2018	Creation the National Health Service	1. Formation of the Service 2. Election of the head on the competitive basis 3. Start to the work 4. Formation of main hospital districts 5. Gathering of the all necessary statistic data 6. e-Health
2	From January, 1st, 2018 till 2020	Primary health care sector	1. Acquiring the status of noncommercial utility 2. Contracting with National Health Service 3. Contracting with patients 4. Adoption of e-Health technologies 5. Financing by the tariff system for the patient and additional budget financing
3	From 2020	Secondary health care and Tertiary health care	1. Contracting with National Health Service 2. Contracting with patients 3. Adoption of e-Health technologies 4. Direct financing per each provided medical service at one unitary rate (it'll be fixed-cost and include costs for drugs, equipment and its amortization, salaries) 5. Adopting the program of medical guarantees

*Source: Created by the authors on the basis of the data from [3].*

For the realization of this concept, the National Health Service as the key element of medical reform must be founded. Its main functions are funding executing and contracting with medical institutions. Its head must be elected on a competitive basis, as the main responsible party of this medical reform [3].

In our view, another important part of reforming is the necessity of creation of hospital districts. The main reason for their creation is the provision of the qualitative intensive medical care for all Ukrainian population; this requires the number of served population about 200 thousand people, which allow the medical institutions to be provided by necessary equipment and staffed with qualified personnel.

The autonomization mechanism of all medical institutions is considered as the main financial and managerial tool of this reformation process and the essential condition of the adherence of institutions of the primary health care into it.

From 2018, all the medical institutions concluded the contract with National Health Service, will be financed under a new mode, i.e. they will get annual fixed payment for the medical care for each patient, with whom the physicians of this institutions signed a contract. In accordance with the draft law № 6327 medical care is paid from the State budget [1]. At the primary level and in case of the emergency situation the state pays for 100 % of all the necessary treatment; it covers about

80 % of all appeals for medical care. At the secondary and tertiary levels the state guarantees 100 % of payment for medical care and other medical services, included into the list of treatment and defined by medical guaranties program.

In accordance with the reform, it is formed the system of the national solidarity insurance. Budget contributions are formed through the general tax system and accumulated in the treasury accounts; from them the National Health Service pays for medical service (fig. 1).



Fig. 1. Mechanism of payments for medical services in accordance with the concept of the medical reform

*Source: Created by the authors on the basis of the conducted researches.*

But nevertheless, it is planned, that some medical services will be paid by patients (so-called “red service package”). All the medical services, gone beyond the bounders of the program of medical guarantees, are included to them (i.e. stomatological services or services of plastic surgery). Noncommercial utilities will be able to provide additional services at the uniform rates, which have been defined for the state program of medical guarantees. Private medical establishments will define independently tariffs for the additional services beyond the bounders of the contract with the National Health Service of Ukraine.

In accordance with the draft law № 6327 [1] there is a norm, in accordance with which the volume of the state budget funds for the state program of medical guarantees realization is annually determined as an amount not less than 5 % GDP in the Law of Ukraine “On the State Budget” (fig. 2 and 3).

It was mentioned above about the noncommercial utility; that means that all the medical establishments will tend to become like other enterprises. They were budget institutions, working through system of the vertical control, so far. Their managers didn’t have freedom to act and were guided by orders from on high. The Law of Ukraine № 2002 [2] allows the medical institutions to fully operate and expand their rights to the level of the all economic entities of Ukraine, including the right to strike deals, to have its own bank account, to set salaries without reference to the wage grid.

Thus, in accordance with [2], (1) manager of medical institution, will get the freedom to manage the assets and finances, to create personnel policy, and to determine internal organizational structure of medical establishment; (2) manager of medical institution, will get the right to set salaries for the employees in the ways, not prohibited by law; (3) medical institutions are able to have its own bank

account; (4) financing of the medical institutions is supported not by the breakdown of the costs, but on the basis of its own financial plan, which allows to manage the funds effectively; (5) medical institution has the right to consolidate with other establishments with the purpose of the functions redistribution among them and optimization of use of the material, human and financial resources; (6) medical institution has ability to hire the doctors, working as individual entrepreneurs, which are registered and have got the necessary license for the carrying out of economic activity in the medical sphere, under a refit contract. But nevertheless, noncommercial utility remains in ownership of the local communities.

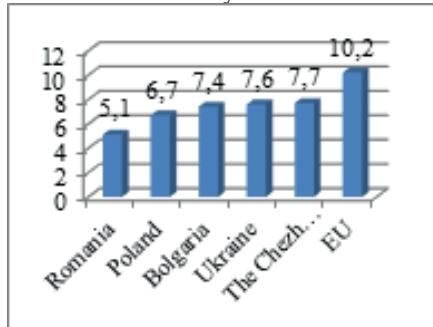


Fig. 2. Expenditures on the health care system in Ukraine in the comparison with other European countries, 2012

Source: The World Bank, 2012.

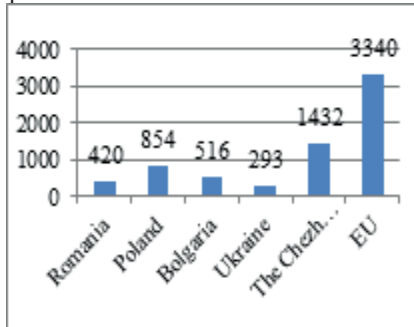


Fig. 3. Expenditures on the health care system in Ukraine per capita, in the comparison with other European countries, 2012

Source: The World Bank, 2012

Thus, we can conclude, that reformation of health care system is a complex process, covering all the spheres of system's functioning. It must be provided by constant regroupment of resources between all elements, stages and levels of medical care with the purpose of clinically productive and more cost-effective decision-making process of medical care provision. It must take into account fast-changing market of medical techniques and technologies, pharmaceutical market, and system of development of clinical practice.

Therefore, among the most priority areas of changes are: (1) structural reorganization of health care system with the development of primary medical care on the basis of family medicine; (2) transition from administrative planned model to the medical care providing on the contractual basis; (3) strengthening of financial basis of health care system; (4) formation of the system of providing and support of qualitative medical care; (5) realization of active personnel policy; (6) realization of rational pharmaceutical policy; (7) managing change in the health care sphere.

But nevertheless, we can trace next obstacles for reformation of Ukrainian health care sector; among them are: (1) redundancy of state obligations of free medical care; (2) deficit of budget; (3) lack of knowledge, training and motivation of the



managerial personnel in the health care sector; (4) lack of interest in reforms of a number of political and corporative groups; (5) weak methodological and political managing process.

Thus, it is necessary to refer to the weaknesses and disadvantages of the reformation process of health care sector in Ukraine. They are: (1) absence of clearly defined goals; (2) a continuous review of strategies of reforms; (3) absence of clearly defined policy, providing the realization of adopted decisions; (4) ignoring of scientifically proved practical approaches, experiences and methods; (5) ignoring of the successful world experience and failures; (6) influence of lobby groups; (7) low paces of realization; (8) incoherence and contradiction of actions.

Given all of the above, we can conclude that for the effective development of the medical system, it is necessary that its part, related to organization and managing of medical institutions, has to be adequate and reasonable to the modern, fundamentally new economic and legal relations. Only in then it is possible high-grade interaction of the government, business and society on issues relating to health care system. In the modern Ukrainian health care system, however, there is a number of structural and management problems, which need fundamental changes of the current approach to the management and organization of medical care.

Among the most significant priorities of the modern stage of medical system's reform we can highlight: (1) formation of organizational structure of the primary health care on the basis of the general practitioner (a family doctor); (2) reorganization of the emergency care; (3) creation new links between the primary and secondary health care; (4) formation new financial gears of health care system; (5) implementation of the system of provision, appraisalment, and control of medical care quality; (6) formation of effective system of stimulation and motivation of the medical personnel. Thus, the main directions of health care reform are: (1) transition from inpatient care to out-patient one; (2) transition from specialized and highly specialized care to general one; (3) transition from quantity of medical services to their quality; (4) transition from increasing the number of physicians to the quality of their work; (5) transition from a treatment to the diseases prevention.

In our opinion, if all these priorities are adhered to, the medical reform will be effective and productive and the main its objective – to increase economies' competitiveness and wellbeing of population in Ukraine – will be achieved.

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## **METHODOLOGY OF REENGINEERING BUSINESS PROCESSES IN CONDITIONS OF IMPLEMENTATION OF CONTEMPORARY MANAGEMENT METHODS OF THE ENTERPRISE**

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Formulation of the problem. The necessary tasks that need to be addressed in the course of reengineering are characterized by a high degree of complexity and great responsibility. Successful reengineering cannot be implemented out without a solid methodological basis. The key role in the business process organization projects is performed by well-established procedures and the application of appropriate methods and tools. It is therefore essential to increase the importance of the business process and to link with it numerous functions. Reengineering of business processes has a strategic purpose to achieve breakthrough improvements in indicators, which will achieve high performance of enterprises that focus on consumers' demands.

The article outlines various possible measures for the use of business process reengineering, which will improve the consistency of procedures, methods and instrumental support for management, its adaptation, minimize the cost, and minimize the time spent.

Unsolved Problems. A great degree of risk is associated with managing the

business processes of the enterprise. Very often the process reengineering approach involves organizational restructuring and can be extremely destructive for the organization. The vital question to address is: what dictates the need to develop a mechanism for using management tools in concert with the goal of achieving the desired breakthrough.

**Aim of the Research.** The aim of this research is to develop a purposeful and systematic understanding of the necessity to introduce the business processes in modern enterprises. In addition, depending on the requirements of the external environment as they are the business processes that are ultimately the subjects of any innovations.

The research was conducted on the basis of the object-oriented approach, which allows to describe both data about the essence of the process and its behavior, provides creation of transparent, easily modifiable business models and information systems that allow the reuse of individual components. The choice of the management method is dictated by the time requirements. Each era was characterized by its own methods and implemented by the head of the firm, based on the ideas and beliefs.

**Main research results.** The relevance of the research lies in the fact that the reengineering of the process provides the maximum improvements, however, remains the most expensive of all approaches to improving business processes and requires a lot of time. Most organizations can implement only one change of this scale at a time. Nevertheless, in this approach the elements are used consistently and as a result, the desired breakthrough is achieved.

This approach can be applied both at the single process level and at the entire organization level. Process management provides planning, and the management of the controls. The subject consists both the basic process and the auxiliary process.

Business-reengineering, similar to other management methods, came to us from the West. During the last 80 years the method of revolutionary transformation of the enterprise appeared and spread; a radical restructuring of its business, which was called «reengineering.» In fact, the ideologists, M. Hammer and J. Champi, expressed the essence of reengineering as: «This is a fundamental rethinking and radical redesign of the company's business processes to achieve fundamental improvements in the main actual indicators of their activities - value, services, quality, pace» [12,13 ]. One of the key concepts that underlies the reengineering are the business processes. It is their improvement that is a huge reserve of increasing the efficiency of the enterprise. Therefore, it is necessary to understand the nature of business processes, to understand what importance they have for the enterprise and most important of all, how to properly change them. To emphasize the business processes, their improvement required an unconventional approach from the managers. Gradually, reengineering, which proposes to break the existing system in the enterprise and build it a new one on the basis of such a revolutionary change in business processes, began to transition into a management system and «grow» with technology and become the basis for scientific justification. In fact,

it appeared in the corresponding software products. In the business reengineering, the process approach is at the forefront, where the enterprise process is the object of management [4].

In this article, we will consider the methodology of applying business process reengineering. This will be an opportunity to improve the consistency of procedures, methods and instrumental support for management and its adaptation. This is essential to move from task management to process management. In such an organization, the result of labor will be visible to each participant of the process, since the «client» of the result of labor is determined initially and consequently, the result is predetermined based on the client's expectations [12].

From the process approach point of view, the organization is resembled as a set of processes (the functional approach as a set of functions). Hence the enterprise management transforms into the process management. Each process has its own goal, which is the criterion of its effectiveness; how optimally this process leads to its achievement? The goals of all processes are goals of the lower level, through the implementation of which the goals of the top level-the goals of the organization are achieved. By managing processes and perpetually improving them, the company achieves a high efficiency of its activities [4]. Therefore, the main focus is on processes as they penetrate all the elements of the control system and are focused on the final result. We will establish the necessary processes and manage them.

Reengineering of the business processes is devoted to theoretical work, textbooks and practical guides that have been published, which nevertheless do not provide an answer to the question of how the reengineering project is actually implemented. For instance, even if the project was developed by the consultants, it should be noted that according to various estimates, the percentage of failures of reengineering projects in the Western companies reaches up to 70%. There are many examples of the fact that the developed projects have not been implemented [2]. The reasons are from our point of view are the rejection of other approaches to the management of the organization and the formal implementation of the principles of reengineering.

The precursor of the process approach was a functional approach. Now it is considered obsolete and its modern alternative is the process approach as a primary tool for reengineering. However, the rejection of the functional approach requires removing the concept of «function» and accordingly, «the functional principle of creating an organizational structure.» Only then the process structure is built. It turns out that the distribution of specialists will be distributed on the basis of their belonging to the processes. Thus as a rule, at the enterprise level each of the employees is multifunctional [6]. Therefore as a rule, it is the combination of a functional and process approach to the management of an enterprise is the «golden mean». The functional structure of the enterprise defines «what to do», and the process structure «how to do.» These are two inseparable aspects of management. If the manager, head of the company can look at the organization from this point

of view, then reengineering will become a really useful and effective management tool [4].

Business process reengineering is a complex method that provided the company opportunities to be configured for the implementation of strategic goals and tasks by optimizing the performance of all its functions and operations by various divisions. Therefore, its application will allow to optimize business processes with respect to the company's strategy, ensure transparency of business for owners and top managers. Furthermore to effectively manage operations, provide predictable processes, and formalize the processes for further automation.

Practical activity for the management and improvement of business processes is implemented with the help of technology of business-reengineering, which the following possibilities into reality [3; 4; 7, 8.10]:

1. Development (design) of future business processes.
2. Diagnostics of business management processes.
3. Change (adaptation) of business processes.
4. Optimization of business processes.
5. Documentation of business processes.

Now we will analyze them in more detail.

1. Development (design) of business processes. For this purpose, a special language for describing business processes is used. In fact, it permits you to describe the current state of business processes, as well as create models of the future. The model includes a description of all the components of the process such as the functions, resources, participants, goals, information, results, events, direction and sequence of actions. Therefore reflecting the existing reality or the image of it in the future. All the participants in the process fulfill their functional responsibilities in accordance with this model. In addition, all the employees clearly know all their actions in all the processes in which they are involved [4].

The development (design) of the business processes involves the following actions: the development of the image of the future organization and the development of the business model of the new organization [11].

A) The development of the image of the future organization. The development of the image of a prospective organization should be implemented using an integrated approach based on a combination of strategy development processes and the business requirements. The activities of the first stage include the specification of the main objectives of the organization based on its strategy, customer needs, the general level of business in the industry and the current state of the organization. The purpose of this stage is to develop a view of the new organization and formulate it in terms of specification of the organization's goals [11].

B) The development of a business model for a new organization. Modeling and simulating of the processes is implemented with the obligatory use of any modeling language. In fact, the modeling language should express how the internal or external process is turned into reality with the help of human or technical resources and from

what functions these resources will be taken. It is especially vital to show how the process can be supported by the information system [11].

2. Diagnostics of the business management processes. The analysis of the business processes is implemented with the purpose of development of elimination offers of the problem zones in the organization's processes. To perform this, a «snapshot» of the technology of the process execution is made-a model of business processes «as is» is built, which allows the customer to get a comprehensive view of what is happening in the company. During the analysis of the model, the current problems of business processes are revealed such as: double subordination, duplication of functions, absence of information link between processes, and the inconsistency of processes. Based on the results of the analysis, suggestions are made for the new direction of changes (adaptation) of business processes.

3. Change (adaptation) of the business processes. Any changes in the conditions of business such as the emergence of a new line of business, the expansion of the range, changes in the supply chain, and technology, require an immediate transformation of the affected business processes. The existing model is adjusted, the changes are communicated to the executors, and they begin to perform functions in accordance with the new conditions. Perpetual adaptation of business processes to changing conditions serves as an effective mechanism for the business management [4].

4. The Optimization of business processes. In order to determine the activities' bottlenecks and effectively manage the company, it is essential to link the implementation of certain processes and works with its target strategic indicators. To perform this, it is vital to compare the company's strategic goals and objectives with the inputs and outputs of the processes. First of all, the dependence of the results of the company's activities on the results of the process is revealed. Second of all, the need to fix the existing business processes in order to assess their effectiveness. If this is not performed now, future significant costs are possible due to inefficient work of employees, breach of contractual obligations, the need for restructuring, etc. This entails both serious financial costs and loss of the company's image [5].

5. The documentation of business processes. It is vital to document all the management's actions and changes of the business processes. Business process models are designed in the form of descriptions, representing diagrams on paper and by the electronic media. These details are resembled in a complex and repository business processes of the enterprise. In addition, changes are necessarily reflected in the models so that the company can perpetually maintain the current version of the entire set of business processes. Similarly, you can plan the future processes and save them as versions that are analyzed, checked and debugged and only then become workers [4].

The necessities to adjust the management system may be due to [9]:

1) The feedback and the impact of the results of the operation of the control object (in particular, the discrepancy between the normative and actual parameters

of the object).

2) The necessity to review the goals, methods and the processes implemented by the management system.

3) The software development and technological tools and progressive management methods.

Conclusions and prospects for future research. To conclude this article, we can summarize the peculiarity of the reengineering of the business management processes as follows:

1. Reengineering approach allows to release additional resources (financial, personnel, technical, etc.), investing them in the main production.

2. Applying the reengineering business processes will improve the consistency of procedures, methods and instrumental support for management, its adaptation, minimizing the cost and minimizing the time spent.

In other words, using managing processes, we organize effective interaction both inside the company and outside with the outside world. Accordingly, this reduces transaction costs (the costs of poor-quality interaction), internal (employees and units among themselves) and external (firms with buyers, suppliers, investors, etc.) [4]. In addition, this will increase the competitiveness of the socio-economic system. Therefore, further research will be devoted to the development of the idea of increasing the competitiveness of the business entity by creating a comprehensive mechanism for the organizational design.

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## **CHARACTERISTICS AND EVALUATION OF ECONOMIC RISKS OF THE ENTERPRISE**

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The statement of the problem. Any business is associated with uncertainty, a lot of dangers, competition. Risk is an integral part of a business activity in any market. The entrepreneurial activity in Ukraine is particularly risky, where an external environment of any enterprise is permanently transformed, where the shadow economy sometimes dominates, where negative factors are widespread and very aggressive. Despite this, under these difficult conditions a lot of companies not only survived, but also thrive mainly due to the effective use of the huge potential of modern risk management.

The analysis of the main research and publications. Different aspects of economic risk were studied by foreign researchers, such as D. Terry [6], E. Nikbakht [4], P. Bernstein [1], and others. The essence of economic risks was investigated by Ukrainian scientists, in particular V. Vitlinskyi [2], T. Koroliuk [3], H. Tarasiuk [5]. The problem of determining risk became particularly acute in the late XX at the



beginning of the XXI century due to political factors, fluctuations in exchange rates, prices. Consequently, the relevance of the research consists in the lack of a common approach to determining the nature of the economic risk category, the needs of practice and risk management.

The results of the research. Activities of economic entities are carried out in a market, which is characterized primarily by economic freedom of actions of the manufacturer. Economic freedom has to be paid, because freedom of one enterprise is accompanied by freedom of other enterprises that can buy or not buy its products, offer their prices, sell counter products at certain prices, dictate their terms of transactions, operations. Obviously, that herewith partners seek, first of all, their own benefit.

The relativity of such a concept as benefit is that benefits for some partners may turn out to be a loss for others. This conception is also strengthened by the fact that companies which produce homogeneous products tend to push their competitors out of the market. Consequently, regardless of desire, starting its activities, and, hence, entering the market, any enterprise will have to deal with uncertainty and, as a result, to feel influenced by those types of risks that are inherent in this economy and this direction of activity.

The conditions of uncertainty that occur in an entrepreneurial activity are the subject of research and the object of constant observation by economists of the most diverse areas as well as other specialists (lawyers, sociologists, political scientists, etc.). A complex approach to the study of uncertainty in business is related to the fact that economic entities, in the process of their operation, are subject to a number of conditions that can be classified by the place of their origin as follows:

- social and political;
- administrative and legislative;
- manufacturing;
- commercial;
- financial.

In the economy of a command-administrative type, business risk was considered incompatible with a planned economy and was not recognized. Today, Ukraine is developing a market economy, which is associated with various types of uncertainty for all economic entities.

Activities of enterprises at various stages in a wide variety of fields are always associated with uncertainty. The existence of uncertainty in activities of economic entities causes the emergence of risks, without which it is impossible to develop the enterprise effectively [2].

Enterprises that are affected by different types of risks can manage them. The effectiveness of management is largely determined by identification in the general classification system. Risks are classified according to different characteristics using different approaches. There is no single generally accepted classification of risks.

Risks can be classified according to the following characteristics:

- connection with entrepreneurial activity: entrepreneurial, non-entrepreneurial;
- belonging to the country of operation of the economic entity: internal, external;
- levels of emergence: micro-level, branch, inter-branch, regional, state, global (world);
- the sphere of their origin: socio-political, administrative-legislative, manufacturing, commercial, financial, natural-ecological, demographic, geopolitical;
- the degree of substantiation of risk-taking: substantiated, partly substantiated, hazardous;
- correspondence with permissible limits: admissible, critical, catastrophe;
- the level of systemacity: systemic, non-systemic (unique);
- reasons of emergence: uncertainty of the future, lack of information, subjective influence;
- risk realization: realized, unrealized;
- adequateness of time for decision-making on responding to risk realization: warning, current, delayed;
- the degree of influence: influenced by one person, influenced by some people;
- the possibility to predict: predicted, partially predicted;
- the degree of influence on the activity: negative, zero, positive.

This classification can be continued or divided into subclasses or subgroups until each of the elements of risk can be given properties that are characteristic only to it. In addition, each risk can be considered in the context of another qualification group depending on specific conditions.

Understanding the nature of risk is directly related to identification of the functions that it performs in economic activity. One of these functions is regulating and protecting [4].

Since economic risk is an integral feature of an entrepreneurial activity, it is necessary to highlight its peculiarities along with changing the forms and the mechanisms of economy management of enterprises under the conditions of transition of the country to market relations. They consist in the fact that the risk is always present at all stages of the business entity activity regardless of the sphere of operation. The entire elimination of risk is impossible due to a number of reasons, both objective and subjective ones, and the absence of risk, as a rule, harms the economy, because it undermines its dynamism and efficiency.

Economic risks of the enterprise are numerous and varied. It is difficult to distinguish the main ones. But it should be noted that there are risks specific to the particular enterprise and those that emerge in all without exception organizations. Under certain conditions all of them can play a decisive role.

Since the term «risk» is understood as a probability (threat) of the loss of a part of business resources, lack of income or emergence of additional costs as a result of certain production and financial activities, then financial risks are commercial risks [2]. Risks can be pure and speculative. Pure risks mean the possibility of a loss or

a zero result. Speculative risks are expressed in the possibility of obtaining both a positive and a negative result.

Pure (static) risks always have losses. Natural risks are associated with a possible impact of natural conditions on a company. They may be weather conditions unpredictable for a particular season (temperature fluctuations, light frost, thaw, abundant snowfalls or, conversely, their absence, etc.) or natural disasters (earthquakes, floods, landslides, tornadoes, etc.) [3].

Speculative (dynamic) risks may have either losses or income. Sometimes they are called financial risks.

Speculative financial risks are when an investor making greenfield investment knows in advance that only two types of results are possible for him – income or loss. The peculiarity of financial risks is the probability of a loss as a result of any transactions in financial and credit and exchange spheres, transactions with fund securities, that is, the risk arising from the nature of these transactions. Financial risks include a credit risk, an interest rate risk – an exchange risk, a profit risk.

Financial risks in a strict sense are interdependent with political ones and include:

- risks associated with the purchasing power of money (inflation and deflation, exchange risks, a liquidity risk);
- risks associated with capital investment (investment risks, which include: a profit risk, a risk of profitability decrease, a risk of direct financial losses.

A credit risk is a danger of non-payment of the principal debt by the borrower and interests belonging to the lender.

According to financial implications it is accepted to divide risks into three categories:

- 1) an admissible risk is the risk that results in a threat of loss of profits by the subject of management if the risk isn't solved;
- 2) a critical risk is the risk in which there is a threat of loss of revenue by the subject of management;
- 3) a catastrophe risk is the risk of inability of an enterprise to pay.

Sources of financial risks can be inside (conflicts, or disloyalty, negligence of individual employees) and outside of the financial risk object (actions of partners or competitors, etc.). Therefore, systems of management of both internal and external financial risks can be distinguished. A special system is used, which is a subsystem of the financial management system, to manage both external and internal financial risks.

Therefore, it can be noted that, broadly speaking, financial risks are any risks that generate financial consequences. Under this approach, financial risks include commercial risks that arise not only as a result of financial risks (in a strict sense), but also property, production, trade risks as well.

A financial risk is the risk arising in financial business activity or when making financial transactions on the basis that the product is either currency, securities, or

funds. It includes:

- an exchange risk is the probability of financial losses as a result of a change in the exchange rate in the period between exchange rate changes and changes in the contract with individuals and a production plant and calculations on it;
- a credit risk is the probability that partners – contract participants are not able to fulfill the contractual obligations as a whole and on individual items;
- an investment risk – the risk of loss of the invested capital and the expected income. In its turn, it can be divided into: a risk of real investment – the wrong choice of location of the object being built, failures in the supply of materials and equipment, the rise in prices of investment goods, etc.; a risk of financial investment – ill-considered selection of financial instruments for investing, financial difficulties or even bankruptcy of individual elements, unplanned investment conditions, etc.

An inflation risk deals with the fact that when inflation rises, the obtained money incomes depreciate more rapidly from the point of view of real purchasing power than they grow.

A deflation risk is accompanied by the deterioration of the economic conditions of entrepreneurship and the reduction of incomes.

Liquidity risks are associated with the possibility of losses when securities and goods are sold through the change of assessment of their quality and value in use.

A profit risk is the risk of an indirect (incidental) financial damage or loss of incomes as a result of failure of some action (investing, hedging, etc.). A risk of profitability reduction is realized as the reduction of interests and dividends on portfolio investments, deposits and credits [1].

All of the above types of economic risks are only conditionally overview, typical for any enterprise. Each of them is divided into subtypes that have particular conditions for the particular enterprise.

The main reasons of risks can be divided into three groups:

1. Most of the processes associated with economy are fundamentally indeterminate.
2. Economically-optimal incompleteness of information.
3. «Organizational» ambiguity or asymmetry of information.

The reasons of risks can be grouped according to the sphere of their occurrence (figure 1).

In an entrepreneurial activity the risk is directly related to the possibility of making a profit, but at the same time the risk limit is required. This limit depends on the size of an enterprise. In fact, large enterprises are less sensitive to risk, and small ones are more flexible and mobile when the market situation is changing.

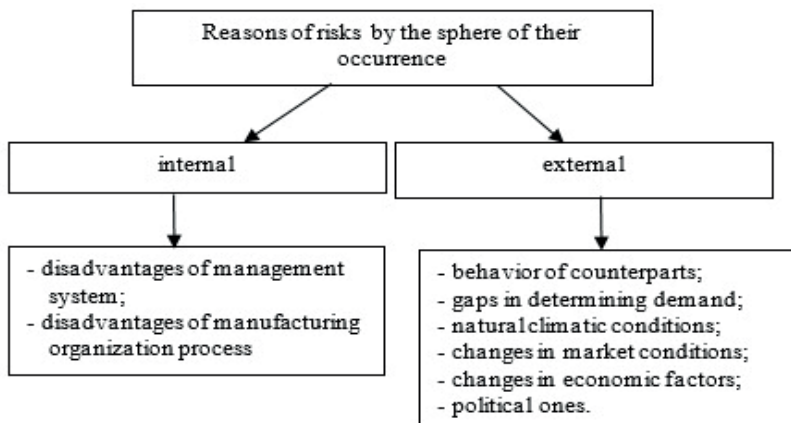


Fig. 1. Classification of the reasons of risks by the sphere of their occurrence.

*The source: developed by the author*

Along with it, the following functions of risk are important:

- the innovative function of risk deals with the search of non-traditional ways of solving economic problems;
- the regulating function of risk has constructive and destructive forms. Constructiveness consists in the ability of the subject to risk, and destructiveness generates adventurism, subjectivism when unreasonable decisions are made and there is lack of information.
- the protecting function of risk is the following: risk should be considered not only as a natural state of an entrepreneur, but also it is necessary to tolerate possible failures;
- the analytical function of risk involves an analysis of all possible alternatives, solutions and selection of the most cost-effective ones.

**Conclusions.** The evidence from practice shows that there is a real transformation of risk into a tool for regulating economic relations, which helps entrepreneurs to develop skills of orientation in the probable world and to form necessary qualities of thinking, such as alternativeness, variability and dialectiveness.

Under modern conditions, such predictability is evident as creating risk funds and application of various methods of risk minimization that allow one, on the one hand, to use the constructiveness of risk, and on the other – to protect an entrepreneur from negative consequences.

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## INTERNATIONAL DEVELOPMENT POLICY STRUCTURES FOR SCIENCE, TECHNOLOGY AND EDUCATION COOPERATION IN HUNGARY

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International development cooperation and international humanitarian activities form an important part of Hungary's international relations and as policies developed in line with Hungary's commitment in the international donor community are key elements of Hungary's role in addressing global challenges. According to the Hungarian law in force , under the leadership of the Minister of State for Security Policy and International Cooperation of the Ministry of Foreign Affairs and Trade and the Deputy State Secretary for International Cooperation, the Department for International Development and Humanitarian Assistance is responsible for developing the policy for International Development Cooperation and International Humanitarian Assistance, for its coordination by the Government, as well as for its implementation.

Hungary's annual summary statistics about spending on official development assistance in 2016 pointed out that last year – similarly to previous years – multilateral development cooperation prevailed primarily due to ratio of mandatory contributions to the EU, voluntary contributions to EU Funds and to support for international organisations. In terms of bilateral International Development programmes and projects, the problem of resources with a low level of funding reappeared. Within the OECD, the Development Assistance Committee (DAC) was founded in 1960. Hungary joined to the OECD in 1996 and since its accession to the EU, it has had an observer status in the OECD DAC as an EU Member State. As a result of the accession process launched in 2016 that took months, Hungary became the 30th full member of the DAC on 6 December 2016 . As a

member of the Committee, Hungary became a part of a global process that aims at coordinating Development Policy all over the world, and deals with the coordinated implementation of the UN Development Sustainable Goals in the long run, as handling crises effectively is possible only with a global approach and with the cooperation of Member States. The Sustainable Development Framework establishing the directions for development after 2015, Agenda 2030, was adopted by a consensus on 25-27 September 2015 at the UN Development Summit by the Heads of State and Government of the UN Member States with Hungary as a participant. The Framework sets 17 goals and 169 subgoals for the period between 2016 and 2030 that replace the Millennium Development Goals (MDGs) adopted in 2000. Hungary had a leading role in establishing the Sustainable Development Goals (SDGs) since Hungary co-chaired the UN Open Working Group (OWG) commissioned to make a proposal for the goals with Kenya for one and a half years. In terms of adopting the framework, it was emphasised that international peace and security and sustainable development cannot be separated, and thus the causes triggering conflicts can only be eliminated through sustainable development. Moreover, the Agenda includes the target system and subsystem to achieve the dual aim of poverty reduction and sustainable development in a balanced manner. At the same time with intergovernmental negotiations aiming at establishing the Sustainable Development Framework, preparations were going on for the Third Funding for Development Conference of the UN held between 13 and 16 July 2015 in Addis Ababa. The final document of the Conference, the Addis Ababa Action Agenda (AAAA) forms an integral part of the Sustainable Development Framework 2030, thus providing its implementation. The Sustainable Development Framework and the Paris Agreement adopted at the 21st Conference (COP21) of the parties of the United Nations Framework Convention on Climate Change (UNFCCC) are interconnected in many ways. The transforming elements of the Agenda 2030 have an effect on the implementation of the decisions made at the Climate Summit, while the decision about the legally binding climate agreement affects all the goals of the Framework too.

Migratory pressure is still one of the greatest challenges affecting Europe. International Development Cooperation has a key role in handling factors that trigger migration locally, that is, in providing assistance with international cooperation to ensure such living conditions that hundreds of millions of people shall not be forced to leave their home countries. The main goal of the UN Sustainable Development Framework adopted in 2015 (Agenda 2030), including the Sustainable Development Goals (SDGs) is that people shall live in peace and security, under balanced and sustainable conditions in every state of the world within 15 years. Besides the “human sectors”, International Development has a great potential in terms of the Economy too. Development activities also contribute to improving international opinion about a particular country, enabling economic actors to pursue their interests in the medium to long term. While migration and asylum were not among

the priorities of development and foreign policy instruments under the EU budget, due to the mass wave of migrants and asylum seekers coming to Europe, they were integrated horizontally into most of the sub-programmes, which in turn resulted in the reallocation of resources. The Commission started to use the funds in an ever increasing ratio on supporting the resettlement and assimilation of migrants and refugees primarily in the neighbouring countries of states affected by conflicts, and wherever the conditions allowed, on providing assistance for them to return to their homeland. The Commission set the overall objective of providing better living conditions for forced migrants and refugees also during the transitional period spent in refugee camps and host communities. Thus, the EU paid greater attention to provide a remedy for the consequences of mass displacements in addition to handling the causes triggering migration (e.g. deep poverty, unstable political and economic systems, harsh security conditions etc.). However, this did not mean a complete change of focus: it was rather a more focused approach in handling consequences, which – in terms of handling causes – had been established by the beginning of 2016, mainly thanks to establishing Trust Funds . Making payments to the extra-budgetary European Development Fund, which serves the development of the African, Caribbean and Pacific Group of States (ACP) as part of the Cotonou Agreement, is Hungary's obligation flowing from its EU membership. Now the programming and the allocation of funds is going on for the 11th EDF (2014-2020). The overall budget of the 10th EDF is EUR 22.682 billion, out of which Hungary has to pay EUR 125 million based on its quota (0.55%). The funds can only be used in specific sectors as set out in particular country strategies (in general: environmental protection, water management, energy, agriculture, food industry, health care industry, construction, education and culture, building capacities, human rights, migration and supporting democracies).

Hungary has been the member state of Organisation for Economic Co-operation and Development (OECD) since 1996. Within the organisation, the Development Assistance Committee (DAC) was set up in 1960. Hungary joined the OECD in 1996, since its accession to the EU, it has had an observer status in the OECD DAC as an EU Member State. As a result of the accession process launched in 2016 that took months, the Minister of State for Security Policy and International Cooperation, Dr. István Mikola formally signed the accession document in Paris. Thus, Hungary became the 30th full member of the DAC. As a member of the Committee, Hungary became a part of a community that aspires to a leading role in coordinating Development Policy all over the world and in the implementation of the UN Sustainable Development Framework including the Sustainable Development Goals. Handling crises effectively is possible only with a global approach and with the cooperation of the Member States. In this process and reducing poverty, the DAC plays a leading role. The DAC urges and assists its member states in establishing a comprehensive Development Policy, in coordinating their particular policies with Development Policy, and in every four year it makes a comprehensive evaluation of



the International Humanitarian Assistance and Development Policy of each member state. Hungary takes part in the high level and executive meetings of the DAC, as well as in its monthly formal sessions and in the work of particular committees. As regards the reform of the ODA, the integration of new, innovative forms of funding into development funding continued in the various working groups of the OECD in 2016 with the main focus on soft loans eligible as ODAs, the administration of development activities in the private sector, and the just recognition of the amount of energy invested by the donors besides the profit of recipient countries. In terms of bilateral scholarships and contributions for developing countries in 2016, 103 students from developing countries participated in the Stipendium Hungaricum programme funded by the Ministry of Human Capacities and coordinated by the Tempus Public Foundation. The scholarship programme that has been well-known again after decades is especially important. It aims at improving Hungary's "international visibility", presenting our national values in the global context. The aim of the programme in educational policy is to foster the internationalisation and quality improvements of Hungarian tertiary education, to strengthen the international relations of the Hungarian scientific elite, to increase the cultural diversity of tertiary education institutions and to promote the competitive Hungarian higher education all over the world. The economic and foreign policy objective of the programme is laying the foundations of the personal and professional attachment of students graduated in Hungary, thus potentially enhancing the understanding of Hungarian peculiarities and interests among the elite of their home country, and establishing the social capital necessary for developing Hungarian economic relations and fostering its aspirations for market entry. It is not negligible that the presence of international students has a positive impact on the economic development of that particular city or region. In addition, the programme contributes to the promotion of the Hungarian language, as some students start their university studies in Hungarian following a preparatory training. In the multilateral context, the university level agricultural programme in Hungary for fellows from developing countries based on the agreement between the Government of Hungary and UN FAO, which continues the practice of previous years, falls into this category. The contribution to the UN FAO scholarship made by the Ministry of Agriculture enabled 34 countries to participate. The Regional Educational Centre of the Hungarian Competition Authority organised five seminars on competition law in 2016 as part of its annual programme for the competition authorities of its primary target countries out of which three events were held in Budapest, one in the Russian Federation and another in Serbia. Within the framework of its bilateral agreements, the Hungarian Academy of Sciences provides financial assistance for the mobility costs of joint research projects and gives mobility support for individuals who wish to travel with research purposes. The subsidised projects mainly last for 2-3 years. The Academy of Sciences provided financial support for 10 developing countries in 2016. Moldova held the presidency of the Police Cooperation Convention for Southeast Europe (PCC

SEE) in the first half of 2016. The Moldavian party – due to trainings organised earlier at the International Training Centre of the Hungarian Ministry of Interior and building on the positive experiences during last year’s Hungarian presidency – asked the Hungarian Ministry of Interior and the PCC SEE Secretariat to organise the Moldavian Presidency’s training programme in Hungary. The Hungarian party did not only provide logistical support and assistance for the organisation, but an instructor of the Faculty of Military Sciences and Officer Training of the National University of Public Service developed the curriculum of the training programme and moderated the training together with the PCC SEE lecturers as well. 16 military education specialists from ten PCC SEE countries participated in the training which they deemed excellent both in terms of professionalism and organisation. Similarly, professional cooperation based on special knowledge transfer was initiated by the Secretariat of the Police Cooperation Convention for Southeast Europe (PCC SEE). The target group of the training was the pool of military experts with multiple years of experience in the field of document security of PCC SEE member states. The professional forum aimed at giving an opportunity for regional professionals to share their experiences about false and forged Iraqi documents, to review trends and best practices in the field of document security and to strengthen the professional network in the area of documents within the PCC SEE. In addition to the British, German, Belgian and Swiss experts, the Pest County Policy Headquarters, the Ministry of Foreign Affairs and Trade, the Hungarian Special Service for National Security and the National University of Public Service sent lecturers to the workshop. The curriculum of the training was developed by the professionals of the Hungarian National Police Headquarters, the International Training Centre of the Hungarian Ministry of Interior and the National University of Public Service with the representatives of the Secretariat. Since 2012, Hungary has been a member of the Delhi-based Global Development Network. It is an international network of researchers in Development Studies that focuses on the development of the Third World. The organisation excels other international research institutions and networks by organising its annual conferences presenting new research results.

Recently Hungarian diplomacy has also sought to enhance cooperation between the disciplines of the Hungarian Academy of Sciences – especially in the areas of Sustainable Development, Climate Impact, Healthcare and Agricultural Sciences – and the scientific and educational professionals of countries entitled to ODAs. Bridging the gap in scientific knowledge and education in underdeveloped countries is of key importance in development. In 2016 October, the Committee for International and Development Studies of the Hungarian Academy of Sciences received the delegation that came to Hungary for the preliminary investigation before our accession to the DAC, and informed them about the cooperation between the Ministry and the academia. However, the results of these efforts also depend on the commitment of the parties. This partnership assumes governmental awareness and an appropriate national legal environment.

Countries should commit to invest in R&D. Experience leaves no doubt that innovation (developing and commercially and/or societally exploiting new products, processes, services, infrastructures, etc) is vital for the success of companies (at the micro-economic level) and economies as well as to increase individual freedoms, the quality of life and societal well-being, at the social level (Sener-Saridogan, 2011). OECD countries show that higher per employee and more intense technology diffusion correlate strongly with total factor productivity. The impact of innovations in communication, mobility and e.g. health care on the quality of life is unmistakable. Innovation is the result of technological development in combination with organizational changes, new management methods, marketing concepts, financial techniques or policy approaches. All of these increasingly rest on scientific research, in the natural, engineering and medical sciences, and today to a greater degree in social sciences and humanities than in the past. Previous developing countries in East and South-East Asia, in Latin-America and also South-Africa demonstrate that this is the way ahead. Companies do invest in research and development which they wouldn't do if good economic reasons were absent, and that is why in almost all OECD countries business funding R&D has increased considerably. But firms are withdrawing from longer-term research, while patents reveal that they rest increasingly on academic research results (citations in patents of academic publications). So here is an important reason why government investments are necessary to maintain the overall R&D enterprise. More generally, there are three compelling arguments. The first focuses on improving the quality, productivity, cost-effectiveness and accessibility of a variety of services, infrastructures and policies for which the government itself is totally or largely, directly or indirectly responsible. Secondly, while basic research is not a pure public good (that is others can use it without diminishing the value for its producers and other firms cannot be stopped to use it), it is obvious that firms will not invest in all the research they will eventually use. Here the governments have to and have always stepped in through the funding of research in universities and institutes of basic science. Thirdly, however, much knowledge is 'tacit' knowledge and embodied in persons, procedures, organizations. Also using published knowledge requires extensive and expensive learning processes; capabilities (people, equipment etc.) are necessary to appreciate and assimilate ('absorb') results from elsewhere. This leads to the modern rationale for investment in public basic research, which creates technological opportunities; it increases technological diversity by providing a source of new interactions, networks and technological options, whereas firms tend to exploit the variety in an existing technological path; and it is also a source of skills, required to translate knowledge into practice; an enhanced ability to solve complex technological problems; and the 'entry ticket' to the world's stock of knowledge. Countries that have been able to benefit most from science and technology have built up systematically ways and means to carry out research and development and to support firms, government agencies and other organizations in society at large

in applying the results of research, whether carried out domestically or abroad. Several common characteristics are to be found and developed countries, emerging economies and some developing countries are not very different in this regard.

Organization and funding systems for science. In many developing countries establishing a national body with responsibility for science and technology was part of the initial institutional framework . They had and sometimes still have a series of responsibilities: defining policies for science and technology, coordinating science and technology and funding R&D are often included, but also supervising or managing research institutes. Registration of ongoing research, responsibility for compliance with international provisions (biodiversity, ethics for example), and proposing legislation for intellectual property, and occasionally even running a national patent office are to be found as well. A key lesson that successful countries have learnt is the need to differentiate several of these functions and to articulate them in separate organizations, some of them within the government structure, some at arms length or completely independent. In several countries a new type of body has emerged over the past decade or so as an expression of the importance science and technology, and education, for the socio-economic development of a country. The increasing focus on innovation as the mechanism through which the impact of science and technology is often realized, and the awareness that an international, global perspective must be developed only add to the reasons to create such a Research and Innovation Council (which is the name of a successful example in Finland ). The essence is that government, industry, research organisations, universities and vocational training institutions agree on and commit to a medium- and long-term vision and strategy for economic and social development, and the role of increased competitiveness and innovation. For that the government creates a high-level body combining key stakeholders from the government, the private sector and other institutions. Developing and agreeing on key components of a strategy for economic development; committing to work together, to coordinate activities, and to mobilise and commit the members' respective constituencies; defining systematic action plans (for example as regards incentives to improve the business environment and entrepreneurship; human resources development; technology, knowledge and innovation; the information infrastructure; communicating with society at large; and monitoring and measuring progress would be key roles of such a Council. It does not take over formal responsibilities but if stakeholders indeed commit to a direction and to work together it may be a powerful informal instance of coordinating across the public and private sector.

Role of a vital enterprise sector. The most obvious standpoint (Golob et al.) is that the enterprise sector usually does not carry out much research. Indeed, historical experience shows that as overall R&D efforts in a country increase, the financial share of enterprises in the total amount of R&D carried out increases as well . The Gross Expenditure on R&D measured as a percentage of Gross Domestic Product (GERD/GDP) which for quite a few countries is now close to or upwards of 3%,

is financed for mostly more than two thirds by private enterprises. Over the period of 2000 to 2015, the GERD share in Hungary rose by a total of 0.59 percentage points. The peak was in 2013, when gross expenditure on research and development made 1.39 percent of Hungary's GDP. In 2015, this ratio was 1.38 percent, much lower than in Austria but nevertheless, higher than in Italy. To the extent that proper economic, social and legal conditions will result in expanding and strengthening the sector of private enterprises one may expect private R&D efforts to grow as well . One very effective way is to support companies in employing scientists, engineers and advanced technicians. In many countries schemes exist that subsidise salary costs at a decreasing rate, say from 75% in the first year to 25% in the third year, and 0% thereafter. Often companies retain such persons. Financially supporting specific R&D or innovation projects in companies, after an independent check on likely viability, or collaborative projects between a company and a researcher at a university or public research centre is proven to be effective as well. Technology adaptation and dissemination programmes with a group of companies or an industry branch, supported by a (public) national industrial research institute are another example. Dissemination is indeed one of the fastest ways to increase the skill level and productivity of companies on a wider scale . It is drawing attention in many emerging economies, and increasingly is being discussed in developing nations. The key notion is that there is often a certain specialization of economic activity in a region, whatever the precise size. There is a virtuous circle of 'proximity': companies, even outright competitors benefit from the same suppliers, from agreements and interaction with universities, polytechnics and technical colleges for focused training, from regional governments and banks creating optimal conditions, from joint public, public-private or even private R&D programmes, and so on. Science or technology parks, or public industrial research institutes, with incubator and business development services to assist entrepreneurs in the initial stages of setting up and growing their company, are part of the game everywhere. And very directly, providing tax support, by allowing companies to deduct part of the salary costs of R&D personnel, is found in general by economists to be an effective stimulus. All in all, developing a rich mix of measures and instruments to help increase skills levels, productivity and R&D efforts of companies is a key policy area and challenge for governments in developing countries. Many good examples exist, and countries which are moving fast such as China and South Africa have gone already quite some way (Haour- Zedtwitz, 2014).

Higher education sector: public and private responsibilities. The university sector or the higher education more generally, deserves much attention. Many developing countries and emerging economies as well, have seen the sector evolve in a particular way. Often one finds one, by now very large, national university which in the past drew most of the talent in the country, both as professors and as students. As student numbers began to grow new national and increasingly private universities were established (Tindemans, 2009). The (former) national

university has often grown so large that concerns for decreasing quality are more than justified as funding has not matched the student numbers. Research was rather concentrated at the national university, also because in many cases this university had close links to one or two universities abroad. Private universities concentrate with few exceptions on areas such as business administration, finances, ICT or for example international relations. The mushrooming number of small universities has, however, brought a serious quality issue to the fore, making a much tighter accreditation system an absolute necessity. Sometimes, however, governments are still very restrictive with providing licenses to private universities or are in other ways, sometimes unknowingly, raising obstacles. The result is that in those countries gross enrolment into higher education is at a very low level. Public financing is often intransparent and rather more follows historical patterns than funding mechanisms that allocate the scarce public resources in the best possible way (McLendon, 2003). Moreover the national university or the few public ones rather deal with the ministry of finance than the ministry of (higher) education, creating a further hurdle towards a transparent and equitable system. In countries with a very strong Academy of Sciences the additional problem was and often still is that the development of a strong research capacity at universities was effectively choked. Establishing a more balanced system of tertiary education, which is much less focused on one or a few central universities is essential. There are very good reasons to differentiate between universities and institutions of professional that offer shorter (one to two years) degree programs or diplomas or longer (three to four year) professional degree programs. Within universities only a relatively limited number should be encouraged or even allowed to develop into or continue as research universities. Dilution of research funding is a threat all over the world and for example a serious issue in Europe, but much less so in the US. China here follows clearly the US example. Providing good-quality undergraduate education is an important and valuable mission for a tertiary educational institution. A set of interlinked issues relate to the functioning of institutions of higher education. But the government has to create many of the conditions that provide incentives for individual institutions to improve their management and operating methods. Universities need strong management and the traditional academic procedures for appointing persons on key positions are not always well suited to modern requirements. The same applies to human resource management already mentioned in the context of staff development. Universities and other tertiary institutions need on the whole increased autonomy, including internal financial autonomy and flexibility in employment conditions. Those conditions, at least in public institutions, often resemble those of the civil service, and the recognition that these are not suitable has taken roots worldwide. What governments are increasingly doing is granting autonomy in exchange for accountability. That is often combined with forms of performance-based funding which will be considered in greater detail in the next section. A link to national priorities is another element whether this is implemented

through a financial mechanism or not. Governments may require universities to respond to such priorities in ways they may freely choose but should report upon in their annual accounts or strategic plans.

Supporting innovation: funding instruments. A contrast between developed countries and most developing countries and emerging economies is not only the availability of funding as such but also the lack of a differentiated and transparent funding system for research and innovation. It may seem a technical matter but it is not. Funding mechanisms play a crucial role in improving quality, in directing researchers and institutes, in ensuring both a sustainable infrastructure for research and dynamics on the basis of competition, as well as in providing incentives for cooperation between universities and companies. As an example, in quite a few developing countries experience is now being built up with a mechanism for providing funding on a competitive basis to excellent researchers and their teams, using (international) peer review as a selection procedure, funding coming from international partners in development.

In the first place governments provide from their higher education budgets direct funding, mostly as institutional or core funding to create the infrastructure for carrying out research. There are several ways in which this can be done. Often, also in developed countries this is still strongly based on discretionary ways, which others would describe as arbitrary. But attempts are being made to base these core funding allocations on more or less detailed budgeting and on the funding of specific cost categories, increasingly governments or higher education funding agencies, which are tasked by governments in some countries to replace governments in doing this, are searching for formula-based lump sum contributions, implying that the governments bases its contribution on some rational calculation whereas universities retain the full freedom to spend the money in ways they deem fit. Both past performance and agreed future targets may lie at the basis of such performance - or formula-based funding mechanisms. The second major contribution to university research also comes from the government, but through and independent 'Research Council' (there may be more for different fields of science) and to a lesser degree from an 'Innovation Funding Agency'. This funding is typically provided on a competitive basis, using (international) peer review as the selection mechanism. The proportion between what is often called the 'first flow of funds' to university research and the 'second flow of funds' varies widely. Some countries (the US and the UK are key examples) rely heavily on the competitive mechanism, others put the emphasis on the core funding. It is really a policy issue: continuity versus dynamics, as some would like to phrase the dilemma. How to promote concentration of research and thus differentiation of missions of tertiary educational institutions is a vexing problem that governments in most parts of the world face. With regard to tapping private resources, whether it is for stimulating companies to carry out more research or for attracting private donations for research in public institutions, governments need to consider which tax measures will effectively trigger individuals, private



foundations or charities and enterprises. Competitive funding for research projects is key as a complement to institutional funding. Almost all countries nowadays avail of a mechanism to provide such funding. The National Science Foundation in the USA is well-known example, but as part of modernizing the research and research funding systems many countries have created a 'Research Council' or a National Funding Agency whose main task is to make available research money for the best researchers by transparently assessing proposals or past performance through peer review (often international) in competition. There is a good case for letting them operate very largely in a 'self-organising' mode by scientists, though the government should set a certain framework to which such a National Funding Agency is bound. The Russian Foundation for Basic Research, the National Natural Science Foundation of China have been successfully functioning during the last twenty years, but also in for example Uganda the Uganda National Council for Science and Technology is now providing competitive grants with government money assisted by the World Bank. Even in France, which in the past relied extensively on CNRS with its own research institutes and research units at French universities, the French Research Agency (AFR) now provides competitive funding. As the STI system evolves and extends governments may wish to consider whether more research councils or funding agencies would better serve different fields of science (Tindemans, 2009). As mentioned before governments can do several things to stimulate companies to increase skill levels, productivity and research efforts. How should one go about it? And what type of support measures is one to consider? Initially for reasons of efficiency and the lack of (human) resources one may well consider to making the same funding agency that on a competitive basis funds academically-oriented or strategic research also responsible for the support measures that target companies in the first place. But eventually as the STI system matures, one usually finds a separate agency tasked with the promotion of research and innovation in companies. The reason is that proposals to get support from companies or involving companies often require some form of business plan, market assessment and a strong managerial approach. Assessing such proposals requires different skills from those required to assess on a competitive basis research proposals. Governments are also considering which instruments they can use to introduce more differentiation, concentration and specialization, which as mentioned before are important policy challenges for the higher education system. This has led in several countries to competition not between individual scientists but between institutions as a whole or departments. Sometimes one finds requirements for public-private partnerships in such competitions. Not always is the competition complete. For example in China's case the limited number of universities allowed to participate in the so-called 'Project 985' have been identified by the government, but using academic performance as an important criteria. Another strategy some governments adopt especially to increase concentration and also specialization focuses on mergers between tertiary educational institutions. It is not an easy option



to implement, certainly not when one part of the problem is the sometimes very large number of rather small private tertiary institutions. Yet governments would do well to consider how accreditation could be used to increase efficiency and quality by increasing the average size of universities and providers of professional training.

Consistent STI system as tool for development. Intimately linked to the funding system for science, technology and innovation (STI) and the functioning of higher educational institutions and research institutes is the system of quality assessment. Theoretically one makes sometimes a distinction between Quality Control (QC), which is the licensing or accrediting institutions or programs *ex ante*; Quality Assurance (QA), which relates to assessing *ex post* whether programs (not institutions) have delivered according to goals and promises; and quality promotion or fostering, which means instilling a spirit of making quality a key parameter in the management of an institution, of faculties, the provision of education and the carrying out of research. In practice often a mix and quality assurance is here taken to represent all activities undertaken in this context. Autonomy is increasingly provided in exchange for accountability and the latter hinges to a large degree on reliable quality assurance mechanisms to be in place. One important component of such a system of quality assurance is a formal accreditation system for higher education. Many countries nowadays require that individual programmes (an undergraduate or graduate program in chemistry for example) and/or institutions as a whole are accredited on a regular basis. Public funding (in the case of public institutions) or the license to operate (in the case of private institutions) can be made dependent on a positive outcome, though in both cases some feel that market information (in the form of the outcomes of accreditation reports, put otherwise: naming and shaming) available to students will do the work without formal sanctions. Not all countries have a national system; some depend on professional bodies (for example in engineering) to do the accreditation. But the mechanism is basically the same: the institution (or department or program management) is required to carry out a self-evaluation - retrospective and prospective - according to a strict protocol; an accreditation committee appointed by the accreditation body carries out a site visit, and writes an accreditation report with possible suggestions or even requirements for improvements to be made before the accreditation body gives its verdict. Setting up a proper, transparent and independent accreditation system is one of the urgent challenges for governments in developing countries, and it is a very positive development that this is now happening on a significant scale. It is also an area where there is quite some scope for regional and international cooperation to exchange views, to establish common protocols, to get international experts on board for national accreditation exercises, and eventually maybe to set up joint accreditation systems. On a global level one finds the International Network for Quality Assurance Agencies in Higher Education, the INQAAHE with membership from all over world from developed countries, developing countries and emerging economies. For research much less homogeneity exists

in quality assurance mechanisms. They are straightforward in the case of funding agencies providing competitive funding as the evaluation is the key element in the selection and granting process. But for the core or institutional funding component of research at universities or research institutes practices still widely differ, or are even absent. Yet, increasingly governments take the view that public funding has to along with regular evaluations of performance. So more and more one see governments appointing committees to do an evaluation of research institutes in a similar vein to the accreditation process in education: a self-evaluation, a site visit and a verdict with or without direct financial or other implications (including dismissing management). In other cases governments just require that institutions themselves or umbrella organizations organize take responsibility themselves for such an evaluation but then provide governments with the outcomes. The yardstick along which to measure and evaluate the performance of a research organization is of course dependent on the nature of the institute. An institute for clinical research, an institute for industrial research or an institute for agricultural research that may involve a considerable extension component, have different audiences and clients, require different criteria for evaluating and their clients must be strongly involved in assessing performance.

A marked difference between many universities and research institutes in developing countries and those in developed nations is found in the area of information and communication technology support. The dependence of education, especially higher education, and research on being heavily supported by a variety of tools in the area of ICT, is nowadays so great that no catching up will be possible without adequate provisions. One needs computers in large numbers, software tools, management information systems, one need to train people to use all of these. Here attention will be focused on one provision that has become of paramount importance in the last two decades, namely a network that provides high-quality data communication services. In all developed countries and in many others ne finds dedicated national networks for research and education, NRENs. These are ‘knotted’ together by continental and global links (very high-capacity cables, increasingly optical fibres). In many developing countries the local capacities are not high, national connectivity is poor as is international connectivity. The other side of the coin is that costs are very high and reliability low. There is no reason why that situation should be allowed to persist. With the new undersea cable along the African coast, global coverage of the system of backbones is virtually complete. What remains is to build the national systems and connect them to the continental and global backbones.

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## **DISCOURSE ANALYSIS OF MANAGEMENT IDEAS' DISSEMINATION IN NEW SETTINGS**

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Beyond Budgeting continues one of the latest management innovations that captured the imagination of both researchers and practitioners [1]. However, unlike its predecessors, namely the Balanced Scorecard and Activity Based Costing, this concept hasn't yet achieved the same degree of success in terms of adoptions. It is a paradox since unlike many inefficient innovations that got diffused widely, Beyond Budgeting proved it works well and contributes to organizational performance in all documented case studies. In order to explore this empirical and theoretical anomaly, we decided to study the emergences and dissemination of Beyond Budgeting as an abstract idea in Ukraine. We hoped to understand how local actors interpret and judge this ambiguous enough concept and whether it can be expected that BB will be adopted in domestic firms. Especially interesting is what form it will take given that previous empirical studies demonstrated that the form and configuration of Beyond Budgeting approaches differently in different countries, organizations even subsidiaries of the same firm. We use discourse analysis which allows capturing both material and symbolic aspects of management ideas and trace their dissemination, interpretation and change as it evolves [2].

Data collection and analysis. In order to answer this question a comprehensive literature review was conducted as well as interviews with practitioners were obtained. In total, 22 articles from professional journals, 20 scholar articles and 12 business conferences were found and four interviews conducted. The first impressions gained from the information received were about a level of knowledge and understanding of the topic Ukrainian scholars and practitioners demonstrated. In their publications they provided huge volumes of information, including budgeting criticism, advantages of Beyond Budgeting and disadvantages of traditional management tools and systems, 12 Beyond Budgeting principles, foreign practice and a lot of other issues addressed in western Beyond Budgeting literature. The first discourse found dealt with the articles titles: authors in the vast majority of cases didn't put "Beyond Budgeting" in the article titles, replacing it with more familiar for local readers associations, like for example, "non-budgeting management",

“performance without budgets” or “new management model without budgets”. They put catchy titles forward but explicitly explained and discussed a meaning and attributes of the concept inside their articles.

However, professional journals provided a grounded analysis and practitioners’ thoughts about the applicability of this innovation in Ukrainian business and cultural circumstances while scholars have limited themselves with concept description. They didn’t make any assumptions and conclusions about Beyond Budgeting prospects in Ukraine and focused solely on information deliverance. At the same time their presentation of Beyond Budgeting philosophy and principles was shifted from leadership subset to process principles which received much more attention. Also academic writers made a significant emphasis on a range of administrative tools like Balanced Scorecards, Rolling Forecasts dedicating most of their attention to these issues. On the other hand, practitioners captured a human-side of the concept and discussed mostly leadership principles and importance of mind-set changes among the employees and management teams, thus, introducing readers with the essence of the Nordic Beyond Budgeting model (Bogsnes, 2009). Many authors suggested and some of them claimed that Beyond Budgeting is inevitable and its emergence and further dissemination in Ukraine is only a matter of time. Business schools and conferences also delivered all available Beyond Budgeting information to the audience: many conferences among other topics announced “Beyond Budgeting in Ukraine” discussions while many business schools put it into a study program.

Summing up, Beyond Budgeting is well-known among Ukrainians practitioners as well as this management model is a subject of publications and presentations during the last ten years. A number of scholarly articles increase every year and the concept’s emergence in business media is still sustainable and it doesn’t decline.

Translation through academic literature. Since being one of the channels of management knowledge dissemination, scholarly publications were a part of this process in Beyond Budgeting cross-national translation from Scandinavia to Ukraine (Sahlin and Wedlin, 2017) [3]. As ideas usually take form of written presentations Beyond Budgeting during its circulation was translated into text that appeared in form of academic and professional publications.

In this stage editing process was executed by actors involved in translation, namely academic writers. Having all necessary rhetoric and formulation techniques they didn’t use it. Articles didn’t provide much analysis, assumptions or conclusions and those comments that were made didn’t shape or reframe the concept according to their perceptions and understandings of the topic. They in fact didn’t bring the notion of Beyond Budgeting into local Ukrainian context; they didn’t reembeded it into specific context in which it might be used by potential adopters.

They, however, edited Beyond Budgeting in the sense that they distorted its founding philosophy as a leadership and people-based management model, where a notion of trust and autonomy is a central. Instead, writers made a shift towards a

technical perspective, describing and discussing management accounting tools like rolling forecasts and balanced scorecards, in fact, often separately from the whole Beyond Budgeting framework. In this sense one may say that these authors have ignored and passed by those principles that seems to be inapplicable and don't fit a specific local context while similarities were repeatedly emphasized. Since certain management accounting tools are widely employed and are in fact institutionalized in Ukraine, respectively, the greatest attention was paid to them.

The issues of decentralizations were also skipped in most of the cases. Authors who put this Beyond Budgeting element into their concept interpretation just mentioned it briefly without any further explanations. At the same time most of the articles had an example of Handelsbanken which in fact illustrates decentralization as a cornerstone of this management system rather than being an example of budgeting abolishment.

While most of Ukrainian Beyond Budgeting writers didn't consider a leadership and process principles as a one unit, they made a one more discourse, at this time towards budgeting abandonment and rolling forecasts installation instead of it. Describing it this way, they didn't link budgets issues with human side of the enterprise, since "a mind-set required before we look at tools and process required. No tool or process can do this job alone" (Bogsnes, 2009: 140) [4]. The typical article suggested, that in order to implement Beyond Budgeting model it is enough to replace it with different set of tools. Bogsnes also emphasized that "the purpose is not to get rid of budgets but to create more agile and human organizations" (Bogsnes, 2013:20) [5]. Human side is what was almost dismissed in Ukrainian academic perspective on Beyond Budgeting.

The positive moment of such a discourse is that scholar writers made the concept more understandable in terms of Ukrainian definition. The point is that they didn't use a label Beyond Budgeting in title (there is only one exception) but replaced it with more understandable and familiar for non-English speaking readers explanation. Instead of Beyond Budgeting they offered various Ukrainian denotations like "non-budgeting management", "management without budgets" or "beyond budgets (but translated it into Ukrainian) that makes more sense for those who read a title and seek to form a basic idea perception.

Another vital requirement for Beyond Budgeting model was almost lost in translation, namely, rewards and evaluations. Only few authors described a relative performance-based rewards and it's the need for fixed performance contracts abolishment. These can be understood as some extra details drop that could have been perceived as too difficult to understand. This in turn distorted the logic of translation (Sahlin-Andersson, 1996) since an attention was shifted dramatically from the aspects that are seen too complicated and not relevant for the new context and receivers.

A lot of authors don't cite primary Beyond Budgeting sources, like Hope and Fraser, Wallander or Bogsnes, referring previous articles by their Ukrainian

colleges. This in turn may cause additional circulations of idea since the primary source is getting lost and more broad and loose interpretations can emerge, creating new meanings and features will be ascribed to the concept.

The one more pattern of Beyond Budgeting reflection in domestic scholarly magazines is a significant time lag between scholar publications and articles in professional media. This conclusion is made since Beyond Budgeting topics became emerge in academic magazines only during the last five years (the date of the first publication is 2010) while professional media started to shed a light on Beyond Budgeting and related topics since 2005. This observation is consisting with the previous findings in management fashion studies (Nijholt et al, 2014) [6], supporting the suggestion that fashion emerge in professional media earlier then in academic publications. However, this fact doesn't give enough reasons to consider Beyond Budgeting as a management fashion, since rate of adoption doesn't support this assumption.

One of the respondents asked about latest research findings in Beyond Budgeting studies, namely, about the overall level of adoption in western countries. This fact can serve as one more evidence that supports an assumption about a lag between academic literature and idea deliverance to potential users. Also, nobody from four respondents mentioned scholarly publication as a source of information in topic considered.

Translation through professional magazines. Professional media plays a main role in Beyond Budgeting dissemination and shaping. This was confirmed by the data gathered on the basis of the interviews with the demand-side representatives and numerous findings during the literature review. Both scholars and practitioners acknowledge that professional magazines and conferences continue to play a key role not only in a transportation of Beyond Budgeting in Ukraine but also have a greatest power to influence an attitude towards Scandinavian concept. And like with a lag between scholar and business journals case, this finding is also in line with the main theoretical findings in professional-media and social-media perspective on management ideas gatekeeping (eNijholt et al, 2014). In later studies researchers began to see an editor's perceptions of certain ideas newsworthiness as a vital factor in its translation and editing process.

In total, description of Beyond Budgeting principles and advantages are reflected in professional print media in greater details then in academic literature. Business publications writers used different rhetorical elements, like storytelling and other techniques that attract readers' attention when interpreting the concept. Also, authors in professional magazines provided readers with analysis, conclusions and recommendation regarding Ukrainian business and cultural environment – this was avoided mostly in scholar publications. They discussed management accounting and control practices and innovations in Ukraine, delivered to the audience various opinions shared by professionals both in western countries and in Ukraine and compare foreign experience and achievements with domestic traditions. Doing so,



they tried to change and reshape highly institutionalized business environment by bringing new ideas and practices to internal knowledge market.

Also, when comparing discourses that took place in both Ukrainian and international business press in BSC publications and those with Beyond Budgeting it need to be outlined that different types of products were highlighted. BSC as a tool attracted wide attention of consultants, which helped it to become an institutional element, while Beyond Budgeting has been positioned as a philosophy and thus considered as a concept that is extremely difficult to commercialize (Becker et al., 2010). Management consultants respond to the current environmental demands and seek to satisfy a niche emerged. But this requires the presence of early adopters and successful examples what was not a case of Beyond Budgeting. Therefore, professional magazines didn't try to sell Beyond Budgeting but rather to perform its natural functions – to serve as a specialized information provider. The main aim was to discuss and analyze the concept as impartially as possible.

Beyond Budgeting “edition” in the professional magazines. Despite the accepted logic of translation discourse and editing rules that distort an idea in some degree, Ukrainian professional magazines were able to keep the balance between narrating and the holistic model deliverance without dropping vital principles and statements. Authors in almost all cases carefully delivered all necessary information that should be told about Beyond Budgeting and added their opinions about the concept prospects and applicability in Ukraine without general information omission or distortion. What is the most important – the logic of Beyond Budgeting principles description and analysis hasn't been violated and kept the balance between uniform present of both leadership and process principles with only few little exceptions related to reward system. While emphasis in academic literature was put on tools that aim to substitute calendar-driven budget, practitioners reached a balanced narrative where the human side of the model is given enough attention (Sahlin and Wedlin, 2017).

Thus, neither a form of idea nor its content and meaning hadn't been reformulated or changed. It should be emphasized that the distinction between idea presentation and opinions and suggestions expression was clearly made in Ukrainian business press. Each time authors stressed that the conclusions are based solely on their opinion and experience gained in the industry they were belonged to. Every time idea remained relatively stable and unbundled while circulating in Ukrainian business media though time and space.

Barriers outlined by the concept translators and potential adopters. Answers given from respondents interviewed and literature review were in many cases in line with the arguments and points of view with previous findings. All publicists and all interviewees agree that traditional budgeting is obsolete and no longer fits to modern business environment (incl. Bunce et al., 1995, Hansen et al., 2003; Hope and Frazer, 2003; Bogsnes, 2009). However, the findings from Ukrainian print-media and internet resources showed that the attitude toward Beyond



Budgeting concept in Ukraine is sometimes skeptical. The results reflect Ukrainian practitioners and scholar's attitude toward possibility of Beyond Budgeting shift and budgeting abandonment among Ukrainian organizations in the recent future as well as no firm with already established Beyond Budgeting-based MCS was found. While data gathered from academic publications deals only with brief descriptions and repeating of Beyond Budgeting theory (often citing only Hope and Fraser's publications) with no deep studying of the phenomenon and with no discussions, business journals, internet sources and respondents provided an information related to the attitude toward Beyond Budgeting among Ukrainian top-managers and companies owners. Among others, empirical findings also showed a degree of resistance and barriers Beyond Budgeting concept meets in developing countries where needed cultural peculiarities absent while unpredictable environment and wick economic situation present.

Barriers that face Ukrainian companies while implementing Beyond Budgeting are partly in line with those that have been found earlier by various explorers. During the last 10 years Ukrainian practitioners and theorists have outlined the next three main barriers that Beyond Budgeting concept meets in their business and cultural environment:

Trust problem. It is extremely difficult to change a mind-set of both management stuff and employees even for those companies that do not operate in unpredictable environment. Hope and Fraser (2003) acknowledge that trust-building requires a lot of time and that is a big cost for a company that has a weak financial position and operate in turbulence environment with bad economic situation. And if Bjarte Bogsnes (2009) was talking about the minority of those who didn't share trust atmosphere of StatoilHydro, Ukrainian CFO and CEO assume that in Ukraine this people would have belonged to the vast majority.

Budget abandonment. The actual budget abandonment is seeming to be problematic according to various Ukrainian business publications. Many authors suggest that companies can use Beyond Budgeting tools and technique, even separate forecasting, planning and resource allocation but at the same time maintain annual budgets. Moreover, according to some authors, a significant amount of companies does mix these two approaches intuitively since a lot of management teams in Ukrainian organizations implemented Balanced Scorecards (mostly using only financial KPIs) and rolling forecasts. Both tools are widely known among Ukrainian practitioners but without any connection to Beyond Budgeting framework.

Decentralization. The main skepticism repeated by some of Ukrainian specialists and practitioners in Beyond Budgeting topics can be summarized in a few statements. First of all, they emphasized that every organization need to establish and to learn traditional budgeting thus it might be a necessary level toward advanced management control systems. Also, many practitioners acknowledge that Ukrainian companies need simple, clear, transparent and measurable objectives with tight budgetary control system implementation. Some Ukrainian managers

believe that focusing on budget-oriented goals as figures that have to be reached will provide better results than the decentralized adaptive models. And as they explain, not because the latter is worse, and due to the fact, that at the level of perception of values, attitudes towards entrepreneurial activity, openness, self-motivation and self-control, Ukrainian society is still not ready to meet these models.

Issues on plasticity and identity rose in academic circles and comparison with data gathered in Ukrainian sources. Becker et al. (2011) raises a problem of too much plasticity of the concept [7]. This characteristic can trigger a broad diffusion since potential adopters can not only see the benefits for themselves but also be able to recognize their own way to translate and interpret an idea. This is what management fashion researchers call interpretative viability and this is what helped with BSC (Ax and Bjørnenak, 2005) [8] and ABC (Jones and Dugdale, 2002) [9] diffusion and further adoption. Consequently, this is what is considered as a factor which can make Beyond Budgeting no longer recognizable as one and the same idea after being translated and edited (Becker et al., 2011). Too much plasticity of the innovation thus can lead to unique identity losing and further losing of control over the brand. Again, the explanation on why some innovations do overcome a trade-off between identity and plasticity and successfully balance between these two extremes, while others do not come from its formulation and promotion. Since it is not a “toolbox” from which to choose some number of items or a simple change of techniques, but a set of twelve principles and, moreover, the most radical change ever existed in management ideas market and change that implies a whole substitution of management model such an approach can lead to a gap between the original idea and its interpretations (Aksom, 2017; Firsova, 2017) [10][11]. Further, Becker et al. (2010) refer to Beyond Budgeting definition as a “combination of innovations” or “innovation that houses others innovations” (Ax and Bjørnenak, 2005; 2007) and remind a Horngren’s (2003) remark about Beyond Budgeting as a right context for already existing tools and techniques. It follows that if this context is removed it is no longer Beyond Budgeting case.

But the empirical data gathered, in particular, literature (both academic and professional) observation and interviews outcomes suggest that respondents of this study and numerous references and reflections in media by various stakeholders showed that it is not difficult to recognize Beyond Budgeting features. Practitioners and scholars in Ukraine strongly associate Beyond Budgeting with de-bureaucratization and improvement of existing budget practice toward more flexibility and efficiency. In other words, this concept can even be promoted and established by brand new label and it still is recognized and acknowledged as Beyond Budgeting.

However, Beyond Budgeting didn’t presented under any other label: it had been clearly delivered by Ukrainian mediators of the concept using “Beyond Budgeting” signboard. Even though it was often substituted in the titles by more recognizable and understandable definitions, inside the publications it was described as a Beyond

Budgeting.

Formulating Beyond Budgeting status in Ukraine. From the perspective of neo-institutional theory, Ukrainian companies can partly or fully implement Beyond Budgeting in order to improve its long run efficiency and thereby to get a competitive advantage (Kennedy and Fiss, 2009) [12]. Since there are no concept first adopters in Ukraine (at least officially), the main reason behind the implementation of this innovation is not search for legitimacy but a desire of performance improvement. Thus, Beyond Budgeting implementation can be now considered as a rational choice and organizations that adopt the concept in Ukraine will be considered as role models and will be imitated by their peers. In this case, mimetic isomorphism will take place (DiMaggio, Powell, 1983). Mimetic process, in turn, will lead to successful dissemination and adoption of Beyond Budgeting among Ukrainian organizations.

Although this study is based on only a small number of interviews, they provide a useful basis for analysis and conclusions about Beyond Budgeting status in Ukraine. All mediators of Beyond Budgeting in Ukraine repeatedly emphasize the fashionable nature of the concept. They have described it as a modern, progressive wave in management practice managers need to be familiar with.

Conditions for Beyond Budgeting emergence in Ukraine. We have described a translation process of Beyond Budgeting, showing how academic and professional literature, business schools and conferences interpret the concept, objectifying it in texts and oral presentation which is vital for further unpacking and reembedding by receiving organizations. However, it is only a half way of the concept travel route (Erlingsdottir and Lindberg, 2005) [13]. Although all the preconditions for the concept adoption by Ukrainian organizations have been carried out – Beyond Budgeting cases haven't been emerged and still don't.

When it is said about impossibility of Beyond Budgeting transfer and emergence in completely different national environment it is only means that this setting doesn't have yet a successful Beyond Budgeting case which could be promoted through various communication channels. Ukrainian "translation agents" (including academic and business magazines, conferences, and business schools) highlighted Beyond Budgeting in the way similar to foreign experience: during the last ten years they provided information about Beyond Budgeting nature, functions, numerous advantages, delivered a detailed analysis of twelve principles, discussed all Beyond Budgeting tools and techniques, including rolling forecasts, BSC, KPIs, benchmarking, decentralization, trust issues, mind-set challenges and explained why it is important for the modern organization in turbulent environment. They frequently mentioned successful cases like Handelsbanken, Borealis, Statoil, listed all their benefits gained after new model implementation [14]. They only failed to show a successful Ukrainian Beyond Budgeting case and that made all their efforts in vain. All rhetoric elements that were used by Ukrainian and Scandinavian media were almost the same in terms of the knowledge and information quality and

volume but Scandinavians based their arguments on the fundament of success story, while Ukrainian had to retell the story from distant land.

Ukrainian managers need this first adopter, an evidence of Beyond Budgeting applicability in their context. An example of such a desired first adopter emerge provides Bogsnes (2009) referring to Brazilian Semco and there are various other Beyond Budgeting cases in quite unexpected places described in different articles. An interview results and various articles being scrutinized during a literature review also supports an assumption that cultural and business features can't stop a first adopter's emergence since a lot of practitioners are ready for Beyond Budgeting.

It appears that there are no first adopters because there are no Beyond Budgeting cases and the last are absent due to, again, the miss of role models. In order to break this vicious circle, Ukrainian managers need to transpose a Beyond Budgeting from outside Ukraine. Those individuals that regularly contact with different and unfamiliar institutional contexts can transpose foreign practices from one field to another. That was a case for diversity management emergence in Denmark in 2000's when it was an absolutely unfamiliar practice in that country when several initiators brought it inside the country in 2002. These initiators worked outside Denmark in close contact with international companies that had a very high-status and were perceived as very legitimate. That was a reason for those managers to internalize a practice, bringing it in the institutional field that was in contradiction with an institutional logic of diversity management.

Beyond Budgeting model in Ukrainian organizations. Beside the tendency of Beyond Budgeting model to take different forms in various locations and contexts and even inside one particular organization it is furthermore implemented significantly different in various countries. Therefore, there is no point to expect that Beyond Budgeting will be implemented in the more or less similar way across the globe. Management control systems based on Beyond Budgeting principles and philosophy vary fundamentally in the different parts of the world, sometimes challenging the most indisputable components of this concept. Some companies claim that they gone Beyond Budgeting but at the same time maintain fixed budget targets or don't separate forecasts and targets.

Talking about Beyond Budgeting rate of adoption in Ukraine as well as in the rest of the world, respondents don't doubt about the inevitability of the concept emergence in Ukraine. As one of them states:

«Beyond Budgeting offers a degree of trust relationships somewhere between Japanese model, when people spend all their life in one company, and highly centralized and control-based model taken-for-granted in Eastern Europe. Of course, it's only a matter of time when the shift from current practice toward European model will be finally made, especially given the fact that the evolution of business principles in the CIS countries occurs much more rapidly than in the West. This is hard to notice, but nevertheless, we have been for 25 years the way that Europe and the United States were moving the last 100 years. So, the main point is that the

time for Beyond Budgeting in Ukraine simply has not come yet, but it's inevitable anyway». (Respondent 2).

Since a strong belief in Beyond Budgeting future in Ukraine was expressed both by respondents and scholar and business publicists their reflections can be summarized and presented as a holistic model where a trends and prospects of particular Beyond Budgeting principles and techniques are shown.

Thus, Beyond Budgeting model drawn and conceptualized from the data gathered in this study including primary data (interviews with practitioners) and secondary data (opinions expressed by practitioners and scholars in numerous publications). Obtained results are presented in Table 1.

*Table 1*

**Beyond Budgeting elements and their likelihood of adoption  
in Ukrainian organizations.**

<b>Beyond Budgeting principles</b>	<b>The likelihood of successful implementation</b>
Values - Bind people to a common cause; not a central plan.	High
Governance - Govern through shared values and sound judgement; not detailed rules and regulations.	High
Transparency - Make information open and transparent; don't restrict and control it.	Low
Teams - Organize around a seamless network of accountable teams; not centralized functions.	Medium
Trust - Trust teams to regulate their performance; don't micro-manage them.	Medium
Accountability - Base accountability on holistic criteria and peer reviews; not on hierarchical relationships.	Low
Goals - Set ambitious medium-term goals, not short-term fixed targets.	High
Rewards - Base rewards on relative performance; not on meeting fixed targets.	Medium
Planning - Make planning a continuous and inclusive process; not a top-down annual event.	High
Coordination - Coordinate interactions dynamically; not through annual budgets.	High
Resources - Make resources available just-in-time; not just-in-case.	Medium
Controls - Base controls on fast, frequent feedback; not budget variances.	Medium

**Conclusions.** Beyond Budgeting is well-known among Ukrainians practitioners as well as this management model is a subject of publications and presentations during the last ten years. A number of scholarly articles increase every year and the concept's emergence in business media is still sustainable and it doesn't decline.

It was found that academics and practitioners respond to the same management knowledge differently which is in line with some previous findings. If scholars aimed to conceptualize Beyond Budgeting theory and contribute to the internal management control research, practitioners interpreted all available information from the perspective of Ukrainian business practice and cultural peculiarities, generating conclusions about the innovation applicability in Ukraine. Professional media and conferences made a decisive contribution to perception, understanding and attitude towards Beyond Budgeting in Ukraine. These actors transported and edited a western knowledge and experience about the concept and shaped its attitude by various comments, suggestions and conclusions about its nature and prospects outside Scandinavian countries. A general opinion among practitioners varies between positive perception and optimism towards Beyond Budgeting applicability in Ukraine and more skeptic and careful suggestions about its ability to work in such a different business, political and cultural context. Most of them however believe that even leadership principles can be fully met by domestic managers as well as mind-set issues can be solved successfully.

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## **MANAGEMENT OF ENTERPRISE DEVELOPMENT: GENERAL GROUNDS**

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High dynamics of the external environment changes predetermines the identification of new objects in enterprise management and at the same time it emphasizes the attention that needs to be paid to those of new objects which are - seemingly - confirmed as management objects, however, their management has a range of still unsolved issues. To the same category also belong objects



the management of which does not fit today's economic environment anymore. And one of these complicated objects in today's management is surely enterprise development.

Enterprise development is a very multifaceted notion, and this has already been demonstrated in many contemporary publications on the matter [1; 2].

Enterprise development is the enterprise's capacity to carry out own well-managed changes in the course of this enterprise's activities along with gradual adaptation to those changes which this enterprise cannot manage. The key result from this process of changes and adaptation is transition of this enterprise to a qualitatively new level/state. From this definition it is rather obvious that various aspects in the course of development are interconnected with each other. The very process of development is possible due to enterprise's capacity to develop and at the same time this process predetermines the final results of development.

Enterprise development is taking place through qualitative and quantitative changes in its activities, that is, through changes in all functional units inside an enterprise (production unit, servicing unit, reproduction unit, management unit and so on). Similar changes are taking place in subtypes of enterprise management (production management, marketing management, innovations' management, financial management, HR management etc.). All these changes can be managed or unmanaged.

Managed changes in enterprise's activities are the result of the implemented managerial decisions supported by appropriate resource use. Unmanaged changes may arise in the course of enterprise's activity due to various external reasons.

It does not really matter whether the enterprise would treat own development as a management object or not, the very course of development would still take place. Thus, changes are inevitable since they happen under the influence of various processes, phenomena and events in both internal and external environment of the enterprise.

Development is essentially evolutionary since its core result is enterprise's transition to a qualitatively new state. However, an open question often is how prompt is this transition? Moreover – how compliant is this new state in relation to top managers' (owners') vision and expectations? Does this new state fit the changed requirements of today's business environment?

The vision on enterprise's future state and further development is usually described in various business strategies, programs, plans and large projects of an enterprise. And in order to make sure the result (the new qualitative state of this enterprise) matches this, described in advance, vision, the very process of development must be well managed.

Accordingly, changes in enterprise's activities must be well coordinated in time and space, they also must have enough resource supply and fit into the current conditions of both external and internal environments. All of the above means, in a nutshell, that changes must be managed.



Therefore, seeing development as an object of management leads us to the necessity to formulate the aims of development, to measure its results, to outline the functions of development management and then - to select the instruments for development management.

Development management is a functional type of enterprise management, taking place along with marketing management, personnel management, innovations' management and so on.

The emergence of this type of management has been predetermined by the deepening division of activities inside enterprises due to complication of all business processes and the necessity to comply with the constantly changing requirements to management. All of the above has logically led to the emergence of new objects for managerial influence.

The need for separation of development management as a new functional type of enterprise management has been also predetermined by the following. Enterprise development is an extremely complex phenomenon, fully oriented on the future. For this very reason, managers/owners of enterprises lose sight of it or treat development management as something secondary in importance. Current activities of any enterprises are always in the center of managers' attention, not the future ones. Of course, solving current issues is important, however, these issues – no matter how vital they are – should not overshadow future prospects of an enterprise, and development is the key and the major guarantee of these prospects.

Many Ukrainian enterprises today already have the whole structural units or at least a manager responsible for development management. However, as the already carried out research demonstrated, competences of such departments/job posts have been determined stemming from a very narrow definition of "enterprise development". For this very reason, these departments are often engaged in spatial expansion of an enterprise, in creation of new points of sale, in buying out other enterprises and/or establishing foreign branches, in reorganization, mergers, acquisitions etc. We have no intention to question the importance of all these processes initiated by enterprises, however, we also need to note here that enterprise development should not be limited to expansion only.

Development management essentially means constant managerial influence and actions directed at the motivated employees of an enterprise, guaranteeing full compliance with the approved and documented in advance plan of changes in enterprise's activities.

Managerial influences and impacts on the performance of employees responsible for the whole set of interrelated changes in enterprise activity may be quite versatile, and their variety leads to the necessity to divide them into specific types. This division can be based on the functional approach (that is, changes in certain managerial functions). The very function of management is a specialized type of managerial activity, assuming a specific list of works to be carried out to solve the set in advance managerial tasks and in such a way achieve the managerial objectives

[3, p. 85].

All managerial works, performed under the function of development management, can also belong to several other functions. The essence of such functions can be revealed from the standpoint of various managers, all being directly related to enterprise development, all influencing – through professional behavior and attitudes – the enterprise performance overall. These functions may include, for example, the following:

- assessment of enterprise development results in the previous periods;
- planning of future development;
- organization of enterprise development;
- control over the process of enterprise development;
- motivating employees to participate (more) in enterprise development.

Implementation of all these functions in the course of enterprise development management must be based on the assessment of the enterprise development results in the previous periods. Such assessments together form a strong analytical basis for target setting, development timeline, selection of a development vector etc. These assessments also allow revealing the mistakes and bottlenecks in the previous periods of development so that the management could be able to determine both catalysts and inhibitors of development.

Planning of enterprise development must start with determination of the development vector. Next, according to J. Gharajedaghi [2, p. 232-237], goes the concentration of attention on enterprise product, application of technologies and overview of the markets on which this product is already present or can be present in the near future. In other words, according to J. Gharajedaghi, the second step, after the development vector determination, concerns the determination of the enterprise's future architecture [2, p. 226].

It is important to note here that selection of a particular development vector does not automatically means complete disregard of all other vectors. It is just one vector becomes the dominating one, while all other become additional vectors.

Development planning, in this context, becomes the combination of interrelated in time and space actions, the key aim of which is performing changes in enterprise activities, necessary for the enterprise's transition to a qualitatively new state.

Enterprise development planning is to be carried out according to the functional subsystems of an enterprise. All activities related to enterprise development are to be included into the plans of enterprise's structural units. Planning of enterprise development assumes the following stages:

- determining the potential future state of an enterprise, described using a combination of quantitative and quazi-quantitative parameters;
- determining the combination of localized changes affiliated to particular functional subsystems of an enterprise which together are supposed to upgrade the enterprise to the qualitatively next state;
- determining the combination of actions and activities which together are

supposed to result in changes in the functional subsystems and their management;

- joining together all changes in all functional subsystems of an enterprise with the aim to have one common canvas of changes;
- determining the types, the volumes and the costs of resources necessary for performing changes in functional subsystems of the enterprise and their management. Also, setting how exactly these resources would be distributed with the course of time.

Organization of development processes can be also understood as a cross-cutting, comprehensive function which is simultaneously implemented through all of the above functions of management. For this very reason, it would be appropriate to distinguish between organization of development results' assessment, organization of planning, organization of control over the development etc.

Organization as such, as a function of development management means formation of the relations between enterprise employees so that to perform changes in enterprise activities basing on the distribution of tasks in the course of implementing the planned changes in a timely manner and within the competence field of certain employees (according to their rights, duties and responsibilities). These relations between employees also assume there is an information exchange taking place between them (which can be arranged hierarchically or heterarchically) for better coordination of their actions. Implementation of enterprise employees' relations aimed at performing changes in the course of enterprise activities is supposed to guarantee this enterprise shift to its next qualitative state as planned.

Organization in this case is a systemic function of development management, serving also a basis for all other functions and even becoming their core. It is the systemic nature of development management organization that preconditions there might be complications in the course of implementation as well as large-scale negative consequences. The latter usually take place once there are irregularities and failures in the course of development. There might be several reasons for that:

- differences in how employees see the tasks to be performed, differences in their experience and professional level; differences in personal perception of changes, especially when the latter go against their personal interests; or simply miscommunication;
- peculiarities of personal relations between employees in the course of their joint work. Troubles may emerge due to a wide range of psychological reasons (preferential treatment, antipathy, differences in psychological types and reactions, conflicts at their latent stage etc.);
- gaps in vertical communication, especially when the aims of development are not transformed into specific tasks for exact performers, or when such tasks are formulated in a blurred, very general manner. In this case the employees are forced to interpret the tasks as they see it, and it may not always be correct;
- dynamic changes in development aims due to the corrections performed by top management (sometimes these corrections can be quite significant). Occasionally,

corrections performed in a certain task may totally change the very contents of this task.

The process of development must be constantly in the center of attention on the side of control authorities. Implementation of the control function allows maintaining the same vector of development along with reaching the set aims, under timely corrections, if needed, so that to avoid significant deviations, if the latter can be prevented, of course.

Today, making control the managerial function at the operational level is not enough anymore since nowadays there is hardly any truly efficient instrument to control enterprise development as such. Lack of control instruments does not allow implementing it into real business practice.

Development management is implemented at two levels of enterprise management – strategic and operational (see Figure 1).

Strategic management of an enterprise assumes setting the long-term goals in enterprise activity which, essentially, are the descriptions of a future new state, to which this enterprise is supposed to shift after a certain period of time.

For this transition of the enterprise to its qualitatively new state strategic management is supposed to provide certain strategies using which this enterprise would reach the strategic goals taking into account all relevant external and internal conditions. These strategies, in their turn, must not only fit into the forecasted state of external and internal environments, but they also must be supported institutionally and by a certain amount of resources.

Strategic management at the level of enterprises has been quite thoroughly studied by now, and the world research circles are very much unanimous about the largest part of its fundamentals.

Moreover, these fundamentals already became integral part of the university textbook knowledge (see, for example, [4, 5]). However, the actual conditions of entrepreneurship (and not only in Ukraine) are changing too quickly, thus, today there are already quite a lot of reasonable grounds for criticizing and revising much of strategic management fundamentals. This criticizing though must not be viewed as complete rejection of strategic management fundamentals by enterprises or rejection from having strategic management as such. Concentration of attention on the discrepancies between strategic management rules and the current conditions of enterprises' functioning should become a platform for further research in this direction.

One of the most challenging issues in contemporary strategic management at the enterprise level is that its fundamentals have been and still are often formed, not taking into account the issues of enterprise development. Development as such must be the key object of strategic management, however, this is not happening in real practice.

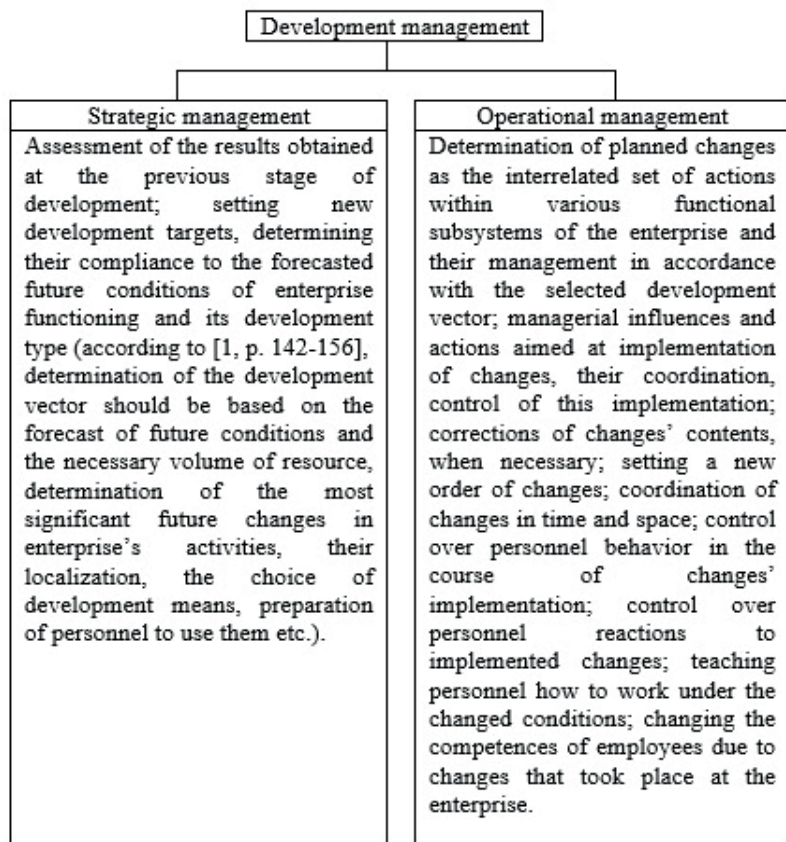


Fig. 1. Development management in the context of strategic and operational management of an enterprise

At the operational level of enterprise management more attention must be paid to the implementation of planned changes, corrections in their implementation when this is needed due to unexpected/sudden changes in the external and/or internal environment. Corrections are also needed when there is an obvious lack of resources or resources of a totally new type are required for further development. Certain attention should be also paid to control over changes' implementation, behavior of employees in the course of changes' implementation and their reactions to these changes.

The functions of development management are implemented differently on the strategic and operational levels of management, and their contribution is also different, depending on a level.

To sum up, enterprise development management is supposed to be one of the

functional types of enterprise management. Since enterprise development is a highly important issue, it should not be disregarded by enterprise management. The use of functional approach makes development management very much similar with general management of an enterprise. However, the former is, at the same time, a new type of functional management which emerged due to strengthening role of development in management overall. For this very reason, formation of a theoretical basis for the enterprise development management and operationalization of its concepts becomes one of the topical direction in contemporary managerial research.

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## **STATE PARTICIPATION IN REGULATING INVESTMENT PROCESSES**

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The key factors of economic growth in the national economy of each country are production, investments, innovations. In industrially developed countries, attention is paid to issues of activation and optimization of investment activity with a view to the long-term development of the real sector of the economy of the state level, because the fact of lowering investment activity below the threshold

values is treated as a threat to national and economic security. In modern economic conditions, investing is one of the key elements of the effective operation of most enterprises in the country [2].

At present, the most important problem is the intensification of investment activity. The system of certain measures in the sphere of a budget, monetary, depreciation and fiscal policy of the state is obliged to support the normal functioning of the market mechanism in the investment sphere, to overcome the consequences of the investment slowdown, to provide conditions for increasing investment activity. For these purposes, it stimulates aggregate demand, regulates bank interest, tax rates, etc.

Through regulation of investments, the state influences the pace and proportion of social production, while using financial and monetary mechanisms. For example, in order to stimulate private investment, carried out through loans, the state covers part of the loan interest at its own expense [3].

Such a policy requires much less resources from the state than if it were engaged in direct investment projects. All activities of the state in the investment sphere, ultimately, should be aimed at ensuring economic growth in the interests of all members of society.

An algorithm for managing investment flows at the macroeconomic level reflects such an important factor in the development of the state's economy as the consumption of financing at the investment level (Fig. 1).

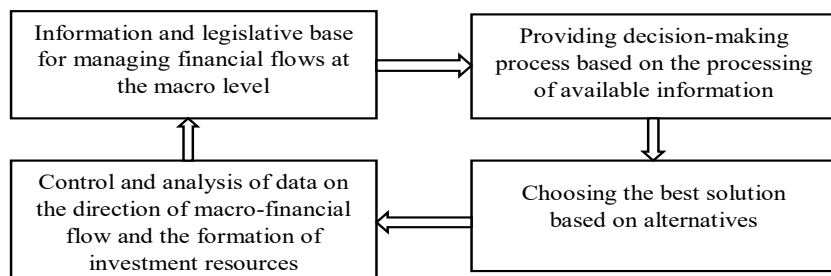


Fig. 1. Macroeconomic opportunities for managing investment flows

*Source: developed by the author*

An effective problem of activating the investment process, ensuring stable rates of economic growth is the effective interaction of market and state mechanisms of regulation of investment activity. Their optimal ratio is determined by the specificity of economic relations, which are formed at a particular stage of development of society. Specific changes in the system of economic relations inevitably cause the transformation of the mechanisms of regulation of the investment process. Achieving the optimal combination of individual areas of the state and market mechanisms for investment regulation largely determines the effectiveness of the reforms.



The real economic practice has shown that unnecessary state interference in the investment process, as well as the unjustified self-annulment of the state from the regulation of the investment market, lead to the stagnation of investment activity. Therefore, a combination of different methods of the state and market regulation, which would correspond to national traditions of economic activity, would ensure a continuous inflow of investments in real production in order to achieve economic growth.

In modern deterministic economic systems in the mechanism of regulation of the investment process, the main role belongs to the market forms of activation of investment activity. This is due to the fact that the market mechanism is characterized by high organizational and institutional development of the investment sphere. The consistency of interests of all participants in the investment process provides the purposefulness and efficiency of the process of investment resources. In the current realities of the Ukrainian economy, the boundaries of state participation in the investment sphere should be significantly expanded. The state performs its regulatory functions by applying a system of methods and influence on the volume and structure of investment, which are depended on economic tasks, financial capacity of the state, accumulated experience of regulation.

Regulation of the state of the investment sphere can not but lead to some restriction of freedom of economic entities. But one should not forget that the restriction of freedom is always due to necessity. The state is forced to influence the market investment process because it has its own economic functions, which it has to realize in the same economic space, where investors also operate. So the central issue is the development of a scientifically sound investment policy with a clear definition of goals, priorities, and stages. The state initiates the development of such a strategy and is responsible for its direction and concrete implementation. With its participation in the investment process, it aims to create such a system of conditions and forms that orientates of the choice of the most effective options for using available investment resources, to establish rules and norms for the functioning of the capital market.

It is important to take into account, however, that state participation in investment activity entails certain expenses of the state and bodies of different levels of management. Therefore, it should be carefully coordinated with the expected results and periodically be reviewed to confirm its appropriateness and magnitude.

The state investment policy is a system of measures aimed at creating conditions for the implementation of the investment process, ensuring access of enterprises to investment resources and their effective use. It involves promoting capital formation, increasing revenues from invested investments and reducing risks from investment activity, has the subordination of the investment process for the implementation of the general economic goal - raising the living standard of the population [4].

At the same time, state investment policy is not limited to a set of measures aimed at the implementation of state investment in the economy. One of the components



of this policy is the state regulation of the financial investment process. In other words, state investment policy covers fiscal investment and state regulation of the investment process. In addition to defining the objectives of the investment activity, the content of the state investment policy is also a mechanism that stimulates investment activity, optimal structure, and scale of investment, specific sources of investment and directions for their effective use.

Ukraine's investment policy needs a tight reorientation to encourage the flow of direct investment into production with the corresponding new technologies and progressive methods of a labor organization.

The state's investment policy should provide for the creation and enhancement of the competitive advantages of the Ukrainian economy at the expense of every possible stimulation of scientific and technological progress by the methods of state structural, industrial, tax, monetary and foreign trade policy. In order to restore the economy, to intensify investment activity, it is necessary to foresee the organization of scientific-production and financial-industrial groups that can become the engines of economic growth based on the development of modern technologies. It is safe to say that the transition to economic growth will largely depend on how successful the investment activity will be and what kind of investment policy will be implemented by the state.

The state's investment policy should include the targeting of financial resources for reproduction purposes in accordance with the interests of the state in the given socio-economic conditions. The interests of the state are the concentrated interests of the entire society. The state acts on its behalf being endowed with political power and has the ability to exercise its will in legal acts, priority financing and other means of regulating the investment process. The state should be the subject of the first level of government, while investment funds, banks, corporations, concerns, joint stock companies and other participants in the investment process should play the role of entities of the second level, which, however, does not diminish this role. «Secondary» here refers only to the general direction of action, not their scale, the nature of effectiveness. In addition, this division of roles must be ensured not so much by direct state power, but by the effectiveness of the rules of economic behavior established by it [5].

In the current situation, the strategic goal of the state's investment policy is to create a favorable investment climate in order to intensify the investment process and ensure, on this basis, stable GDP growth and stable social development. This requires the strengthening of the functions of the state as a strategic investor who cares about the prompt finding of the Ukrainian capital objectively its inherent properties - the accumulation, carrying out of organizational-economic, legislative and legal measures aimed at attracting investment resources, concentration of efforts at the nodal points of socio-economic development, so-called «growth points».

The efforts of the state's investment policy in the medium term should be aimed at consistently reducing the systemic and specific risks of investing in Ukraine,

ensuring a stable and favorable legislative regime of investment activity, and creating effective legislative and practical mechanisms for the effective protection of investors' rights in the implementation of investment projects. The priority task here is also to change the negative image of Ukraine in the world capital markets and to create a positive image of the Ukrainian economy, as a place with standard and safe business conditions, understandable entrepreneurs in any country in the world [2].

In the long run, investment policy should provide a simple and expanded reproduction in a socially oriented market economy. The most promising directions of this policy are the implementation of a systematic and innovative strategy for highly efficient machines, equipment, and advanced technologies, which allow to continuously improving socio-economic efficiency and increase profit margins.

In accordance with the investment policy, the state aims at the investment process in close connection with the innovation process as a necessary condition and an important prerequisite for the formation of a knowledge-based economy, high-tech industries, and high-tech products. We need not just investments, but investments related to the improvement and increase of scientific and technical potential, which ensure the transition from technological to nature-transforming processes, which are gradually approaching the innovative processes of change of matter and energy [1].

Today, the absence of a system for ensuring the innovation process in the country has led to a situation where the decline of the high technology industries in the industry has occurred in Ukraine due to the global development of non-material manufacturing and informatics sectors. The current situation in the Ukrainian economy was the result of uncontrolled market elements, which does not contribute to the creation of organizational and economic conditions for innovation development. At the same time, the experience of developed countries has shown that for success in innovation development, special mechanisms of management and self-organization are needed that promote the innovative type of development. One of its main elements should be the financial mechanism, which initiates the revival of the demand for innovations from business entities, which today largely do not have sufficient funds for it since the cycle of productive investments and innovations goes beyond the short-term interests [7].

In these conditions, it is necessary to create an investment-innovation mechanism that corresponds to economic realities, which provides a large-scale capital inflow for the fundamental modernization of production on the basis of high and technology-intensive technologies. It should be borne in mind that investments are closely linked to the process of economic growth, the restoration of production, as well as innovative activities. For successful economic growth, the volume, structure, and quality of investments are important. It is the mass of investments with its modern qualitative structure that determines the possibility of switching to a new type of technology. Economic growth is possible only at the price of investments - based on

the growth of the organic structure of capital. This position of the classical political economy remains unforgettable even with the growth of investment in «human capital» in developed countries. Therefore, financing, first of all, should be directed at the expansion and restoration of fixed capital, the development of the material and technological intellectual component, where the intellectual component of the resource potential is the main implementation of any investment activity, both at the micro - and at the macro level [6].

The current investment policy of the state is adequate to the general economic course of the country. Limited financial resources dictate the volume of investment. Therefore, the state is not in a position to subsidize the development of new productions and fully implement social and investment programs. The solution to this problem is possible only if a fundamentally different economic policy is implemented, including in the investment sphere. The moderate centralization of state investment policy laid down by the former system of economic relations is now not only appropriate but also necessary since it enables the most efficient and rational use of scarce investment resources [8].

So today, a transition from a liberal type of investment policy to a moderately liberal one is required, in which the state restores its lost functions of the owner, equal partner, participant, organizer, guarantor, and creditor. The task is to reasonably and optimally combine market-based methods for regulating the investment process with the state. This refers to the prices of means of production, depreciation rates, attributes of securities, organizational structures, incentive schemes, etc. This is natural and natural in a normal market. But the transformations and distortions of the domestic economy have led to the fact that the action of natural market regulators more often turns into counteraction, restraining and destroying normal production and economic processes. Particularly painful this circumstance has affected the investment sphere. The tactical content of investment policy in the prevailing economic conditions is not in self-removal, but rather in the active actions of the state in the management and regulation of investment activity. The real rise of investment activity is hardly possible without the state's efforts to reduce risks in the major segments of the investment market.

Today, the distinctive feature of state investment policy should be the focus on the available domestic resources of accumulation in the country and the emphasis, first of all on national capital. World experience shows that only close coordination of the state's policy with the programs of large financial and industrial structures that have proved to be viable gives a real chance of getting out of the crisis, recovery and the subsequent dynamic development of the economy.

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## **MANAGEMENT IN SPECIALIZED INFORMATION SYSTEMS OF THE DEPARTMENTS OF THE NATIONAL POLICE OF UKRAINE**

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Many prominent scientists (both in Ukraine and abroad) work in the area of solving the problems of counteracting the disorganization of the SIS safe functioning and specialized computer networks of the National Security Service, the modification of the information that is processed in the SIS, databases, and software in the context of unprecedented cyberattacks activity.

Moreover, a sheer number of up-to-date publications is dedicated to the question

of the creation and operation of IS systems. Among the available scientific and scientific-technical sources, we should note the works of leading military scientists in this field V. Buryachok, V.Khoroshok, V. Tolubok, S. Tolyup, and specialists of the State Service for Special Communication and Information Protection of Ukraine - K. Pestov, V. Kravchuk and others.

A significant contribution to the development of the theory of information protection and information security have been made by V. Dudykevych, V. Maxymovych, M. Karpinsky, O. Petrov. Z. Zhyvko. Special features of the organization of combating cybercrime are the subject of pre-research of V. Khachanovsky, V. Tsymbalyuk, and S. Demedyuk.

Researchers still overlook questions of developing and implementing effective methods of preliminary evaluation of the ISMS effectiveness; ignoring the legislative aspects and requirements of international standards in the IS field while designing a reliable ISMS.

The authors believe that the ISMS in the NPU departments should be based on the principles of complexity and adaptability.

The purpose of the study is to substantiate the priority of creating the ISMS in the context of ensuring the protection of information assets of the specialized information systems of the departments of the National Police of Ukraine, as well as to identify the organizational principles of the ISMS functioning on the basis of the requirements of current Ukrainian legislation, international and national standards.

Statement of the main provisions. The effectiveness of the system of protection of information assets of the SIS of the National Police of Ukraine depends on the adoption of weighted decisions that support, accompany and adapt the IS system to the constantly changing conditions of functioning.

Under the notion of SIS (within the scope of this publication) we understand the information system in which: interaction between a significant number of sufficiently independent components is ensured, which, in its turn, can be considered as separate special-purpose computer networks; the level of required protection against unauthorized access (UAA) to information assets for different users in different SIS components can vary in a significantly. SIS is characterized by the following features: territorial dispersion; high degree of heterogeneity; use of global connections [3].

Since according to the range of tasks to be solved, its structure, and architecture of the system SIS is heterogeneous, the IS system should be heterogeneous as well. The heterogeneity of the IS system constitutes in the presence of various objects of protection and, as a consequence, different requirements for the IS in each independent SIS component. This is due to the fact that an independent SIS component has only its own critical information assets, software and hardware means of information accumulation, storage, and processing, models of threats and IPP.

Based on this understanding of SIS, the IS provision is a specific problem.

Therefore, an important stage in implementing the protection of the entire SIS is the choice of an effective method of protecting a particular independent component of the system. In order to design a protected SIS, you need tools that both detect and block cyber-attacks, and prevent the latter.

The authors suggest using an adaptive approach to the protection of the SIS information assets, which allows us to control practically all threats and to respond in a highly effective and timely manner. This also enables not only to eliminate vulnerabilities that may lead to the implementation of cyber threats but also to analyse the conditions that lead to their very emergence. Such an approach is possible only if the level of cyber threats is evaluated, taking into account their purpose and the analysis of the risks of information assets security, which is provided with the means of adaptive safety management of the SIS, based on the advanced reaction of the security system to the implementation of plausible cyber-attacks.

Whilst considering the IS in the SIS, it is always said that there are some desirable states. These desirable states describe the SIS security. The peculiarity of the notion of protection lies in its close connection with the notion of cyber threats (which may be the reason for the SIS withdrawal from a protected status).

Consequently, we must isolate three components directly related to violations of the SIS security: the threat – external (in relation to the SIS) source of violation of the protective properties; the object of cyber-attacks is an independent component of the SIS, to which the threat is directed; action channel is an environment of the malicious activity transfer. The algorithm for implementing a cyber-attack on an independent component of the SIS is illustrated via Fig. 1 [4].

Information protection policy is an integral characteristic that unites all components of the IS system. It is a qualitative (or qualitative-quantitative) manifestation of the SIS protective properties [5]. The description of the IPP must include/take into account the nature of the threats, the cyber-attack object and the cyberspace implementation channel.

For the SIS there is a typical architecture with structural components carrying out their specific tasks. In general, the SIS architecture includes four levels: the level of application software (AS) – the level of interaction with the user; level of database management system (DBMS) and Web-servers - the level of data storage and processing in the SIS; level of the operating system (OS) – the level of DBMS and AS service; network level – the level of interaction of the SIS independent components.

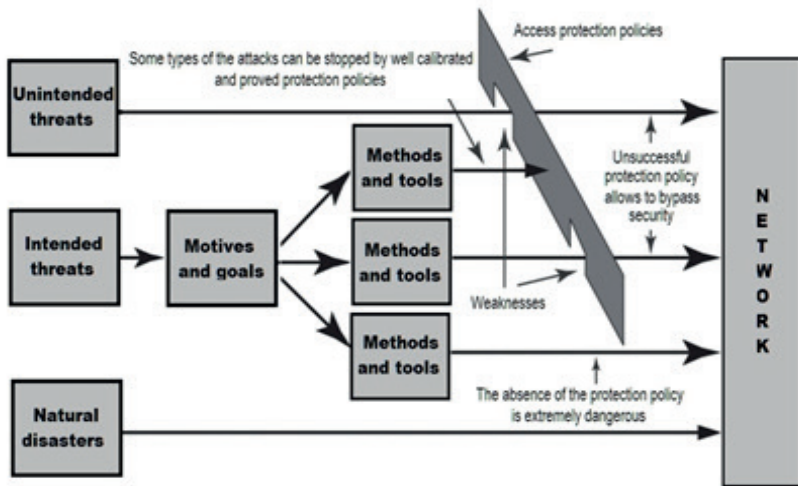


Fig. 1 An algorithm for implementing a cyberattack on an independent component of the SIS

Cyber-attacks can be implemented at all levels of the SIS architecture. The most spectacular manifestation of the violation of the SIS security and the IS of a state institution is the blocking or modification of this institution's Web portal contents. Let us consider the stages of implementing a cyber-attack on the SIS.

In order to understand the nature of this threat (the established term cyberattack is given in [6, 7]) the cyber-attack on the SIS is considered an arbitrary action performed by the attacker to implement the threat while playing to the weaknesses. The SIS weakness is the inability of the defence system to withstand the implementation of certain cyber threats or a combination of such.

Practically all SIS components are vulnerable. Among them we note the following: network protocols and devices that form the network environment; Operating Systems; DBMS and Web-servers. Thus, ensuring the absence of weaknesses should be used as the basis for formalizing requirements for the means of protection [3].

Only strict and actual control of the SIS security (which can be implemented through ISMS on the basis of adaptive approach) can significantly reduce the IS risks. Such an approach to the IS system in the SIS is called an adaptive protection model. The interaction between the security analysis systems and the detection of the cyber-attacks of the adaptive protection model is presented in Fig. 2 [8]. Adaptive protection systems are orientated towards the active counteraction to the IS threats. In order to make the security system meet the modern requirements, it is necessary to complement existing solutions with the three new components: security analysis; detecting cyber-attacks; management of the IS incidents.

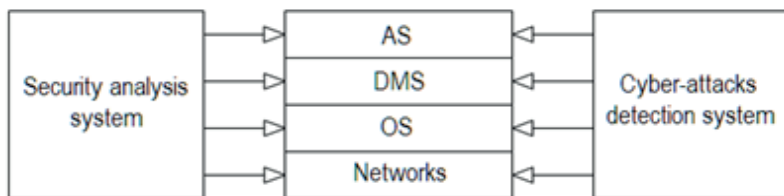


Fig. 2. Interaction of security analysis systems and cyber-attacks detection of an adaptive protection model

In its essence, the ISMS is choosing and managing appropriate measures to protect the SIS information assets from certain cyber threats in accordance with their functioning criticality of [4]. It is part of a comprehensive IT management system based on the assessment and analysis of the IS risks to the designing, implementation, administration, monitoring, maintenance, accompaniment and development of IS based on the procedures used, the size and structure of the SIS.

The ISMS should be process-oriented and as well as based on the PDCA model of processes organization (the Deming Shewhart cycle: Plan-Do-Check-Act): creation – identification of assets, risk management; implementation – the stage of implementation of the appropriate IS management; verification – monitoring and analysis; action – maintenance in working condition and improvement.

Consequently, the quality IS management is based on the following principles: a complex approach - the IS management should cover all components of the SIS and take into account relevant risk factors; consistency with the IS strategy; high level of manageability, and continuity of management; processing approach – linking management processes into a closed cycle of planning, implementation, verification, audition and adjustment; efficiency – a rational balance between ISMS capabilities, productivity and costs [8].

The ISMS should ensure the safety and reliability of the SIS functioning and, according to the authors, design, implement, and operate on the fundamental principles of Ukrainian legislation and international agreements, national and international standards [9].

In Ukraine, a number of laws of Ukraine are in force and a number of conceptual and normative documents of various levels have been adopted that cover issues of ensuring the state's informational and cyber security, in particular, the Decree of the President of Ukraine No. 47/2017 on the decision of the National Security and Defence Council of Ukraine dated 29 December 2016 «On the Doctrine of Information Security of Ukraine»; On October 5, 2017, the Verkhovna Rada of Ukraine adopts the Law of Ukraine «On the Basic Principles of Ensuring the Cybersecurity of Ukraine».

Note that the standard is a certain methodology and a system of requirements



formation, in our case, created for assessing the security of information assets. Systematic approach can be traced starting with the terms and levels of withdrawal, and ending with their use during the development, implementation, certification of the ISMS.

Specialists in the field of IS cannot do without knowledge of state and international standards. Moreover, compliance with the requirements of standards in Ukraine is regulated at the legislative level. The provisions and requirements of standards are one of the forms of knowledge accumulation (in particular, on the procedural and software-technical levels of the IS). They fixate proven technical solutions, methodologies, developed by leading experts. The standard provides best practices in the field of information security management for those responsible for the development and maintenance of such systems.

In accordance with the Law of Ukraine «On Standardization» [10] and the implementation of the «National Standardization Work Program dated 2016» [11], Ukrainian state standards in the field of ISMSs development and certification have been adopted, harmonized with international normative documents by the method of verification.

Among the standards, we will consider ISO 27K series, developed for the formation of information security management systems: (1) DSTU ISO / IEC 27000: 2017 (ISO / IEC 27000: 2016, IDT) Information Technologies. Methods of protection. Information Security Management Systems. Review and Glossary of Terms; (2) DSTU ISO / IEC 27001 Information security management systems. Requirements – Information Security Management System. Requirements; (3) DSTU ISO / IEC 27002 Code of practice for information security management - Practical rules on information security management; (4) DSTU ISO / IEC 27003 Information Security Management Systems Implementation Guidance – Guidelines for the implementation of information security management system; (5) DSTU ISO / IEC 27004 Information security management. Measurement – Measuring the effectiveness of information security management system; (6) DSTU ISO / IEC 27005 Information security risk management – information security risk management; (7) DSTU ISO / IEC 27006 Requirements for bodies providing audit and certification of information security management systems – Requirements for the bodies of audition and certification of information security management systems; (8) DSTU ISO / IEC 27007 Guidelines for Information Security Management Systems Auditing (FCD) – Guidelines for the audit of the ISMSs; (9) DSTU ISO / IEC 27008 Guidance for auditors on ISMS controls (DRAFT) – Audition of ISMS control mechanisms; (10) ISO / IEC 27011 DSTU Information Security Management Guidelines for telecommunication organizations based on ISO / IEC 27002 – Information Security Management for Telecommunications on the basis of ISO / IEC 27002.

The main standard which can be used to base create and maintain the ISMS is the updated standard ISO / IE 27001. Note that this is not a technical standard, but

a managerial one.

Another important feature of the ISO / IEC 27001 standard is that an institution of certification has been introduced to control the quality of the IS management process. The certificate has an international status.

In the process of developing and implementing the ISMS it is necessary to fulfil the following stages: to make a decision on the ISMS establishment and to determine the limits of officials' responsibility; to inventory the SIS assets; Categorization of the SIS assets; Audition of the SIS security with the detection of cyber threats; assess information risks; to develop an information risk management system; to develop bases for normative documents on the IS and achieve their full implementation.

For the ISMS processes, the model of the cyclic process based on the principle of the IS control, with the centralized administration in its core (taking into account the specific functioning of the SIS – compliance with the regime of secrecy) is used.

According to the authors, the analysis, assessment and risk management are conducted on the basis of the classical CIA model (confidentiality, integrity, availability).

The determining problem in the ISMS functioning is the lack of a systematic approach to monitoring IS incidents. That is, the absence of incidents does not indicate that ISMS works correctly – it means that incidents are not fixed or not determined [8].

We understand the routine work of services as one beyond the scope of the service level agreement. According to [2], the task that are being solved by the ISMS are the following: restoring the regular functioning of services in the shortest possible time; minimizing the impact of incidents on the SIS functioning; providing processing of all incidents and service requests; concentration of the IS support resources in the most important directions; providing information that optimizes support processes, reducing incidents and management planning.

The IS incidents threaten the SIS, as the result of the potential of the NDS to state information assets, the failure of key network services, interceptions of IDs, website modifications, theft of personal data and other incidents. The ISO / IEC 27005 standard describes the principles of incident management. A key element of the standard ideology is the analysis of incidents in order to determine which information assets of the SIS are to be protected from the incidents and to what extent quantitative and qualitative indicators assess the potential losses. It also provides a model for assessing the incident handling capabilities, goals and means of incident management. The standard is complementary to the ISO / IEC 27001 standard in the management of the IS incidents.

Knowledge of principles, models, and procedures plays an important role in a full understanding of this standard. The IS incidents management procedure includes: incident detection and identification; notification of the incident occurred;

- registration of the incident; elimination of the consequences and causes of the incident; analysis of the incident;

- preventive measures to avoid the incident recurrence.

In order to handle events and incident situations, an incident response process must be organized. The main tasks of the IS incident response process are: 1) ensuring coordination of the response to the incident; 2) confirmation/refutation of the fact of the IS incident occurrence;

- ensuring the preservation and integrity of the incident evidence, creating conditions for the accumulation and storage of accurate information about the implemented IS incidents;

- minimizing the consequences of violating the confidentiality, integrity, and availability of the SIS information assets;

- protection of the SIS information assets;

- training personnel on the means of identification, elimination of the consequences and prevention of the IS incidents occurrence;

- actual and objective information about the IS state.

According to [4], the information security incident management process is presented in Fig. 3.

The process of incident management is one of the most important in providing data for analysing the functioning of the ISMS, assessing the effectiveness of the use of measures, reducing risks and improving the SIS protection.

As an example of the main processes of the system for managing incidents of information security, can be considered the following:

**1. Planning** (provision of material and staff resources; development of a control scheme for incidents; development and approval of organizational and regulatory documents; personnel training and testing of the chosen incident response scheme).

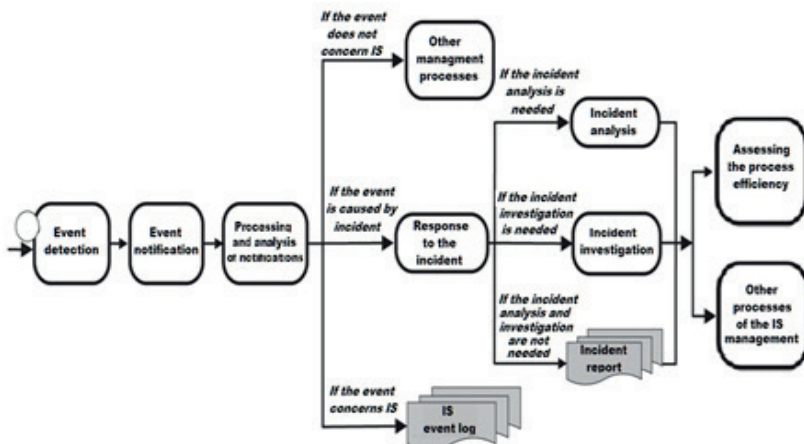


Fig. 3. The process of managing information security incidents

2. Operations (incident detection and identification; preliminary analysis of the incident; an initial response to the incident; responding to an incident; investigation of the incident; analysis of the incident; development of recommendations).

3. Analysis (metrics analysis of the internal processes efficiency; metrics analysis of the effectiveness of the processes goals achievement; analysis of the relevant feedback; development of recommendations).

4. Improvement (coordination and testing of the improvements; transition to the planning stage of the improvements implementation process; In its essence, the ISMS is the choice and management of appropriate measures to protect the SIS information assets from identified cyber threats according to their criticality [16].

Finally, we would like to note that the conducted analysis substantiates the fact that making adequate decisions in the field of legal regulation of the ISMS establishment, operation and maintenance will not succeed unless there is a clear definition and interpretation of the basic concepts and terms; the main problem of the ISMS functioning is the lack of a systematic approach to monitoring the IS incidents; only the strict and constant control of the SIS (which can be implemented through ISMSs based on the adaptive security model) will significantly reduce IS risks.

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## **THE PARADIGM OF THE PERSONNEL MANAGEMENT OF THE ENTERPRISE ON THE BASIS OF THE STAFF MOTIVATION SYSTEM DEVELOPMENT**

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The potential of any enterprise is closely correlated with the quality of its management system and, above all, with the ability of the management team representatives to motivate personnel to achieve the enterprise strategic goals and objectives. The personnel's interest in the development of the enterprise is formed when at least two conditions are fulfilled: first of all, it is the motivation for the personnel to satisfy the need in achieving the main objective of the enterprise economic activity (that is, making profit), along with satisfaction of their own needs; secondly, it is ensuring the proper level of working conditions, their comfort, safety for health, and guarantee of the high level of the technical armament of labor.

It is these two prerequisites that are decisive, since in the conditions of a market economy, the main of all types of resources involved in the production of goods and services is human capital (at the enterprise level, personnel) that is not only able to create an added value for a certain product or service, but to implement the strategic

intentions of the top-managers on the development of the enterprise and receiving profit from the sale of these goods / services to the consumers.

Consequently, it can be recognized that the management of an enterprise at the present stage should be focused on the creation of such a system in which the personnel is motivated to further development of skills and competencies, necessary for further development of the enterprise as a whole. The role of personnel management in these conditions is to harmonize the needs of the enterprise in highly qualified specialists and create conditions for proper professional activity and self-development of personnel. Therefore, the qualitative system of motivation of the personnel of the enterprise is the basis for an effective personnel management.

At the same time, the conducted studies allow us to highlight the following scientific problems:

- scientists do not always take into account the importance of solving the problems of personnel management in general and, in particular, the creation of a mechanism for its motivation as one of the elements of enterprise development;
- the concepts of “staff motivation”, “staff incentives” and “manipulation” do not have clearly defined boundaries, and are often used in the modern scientific environment as synonyms;
- considering the process of enterprise development and aiming at solving practical problems in the field of personnel management, scientists ignore the rather important issue of creating a complete system of staff motivation, and the tools of manipulation (resulting from the theoretical and methodological postulates of the behavioral economy) in the process of staff motivation are not considered in Ukraine, but are widespread in the practice of a number of Western European and American companies and corporations.

These scientific problems were formulated by us on the basis of the content analysis of scientific works of modern scientists who are engaged in the search for ways to improve management processes at the modern enterprises.

Analysis of the comparison of the essence of the “enterprise management concept” with emphasis on the importance of personnel management according to the interpretations of various scientists and socio-cultural establishments showed that the process of creating effective tools for the formation of sustainable motives for each employee to achieve not only his own, but also corporate goals, becomes extremely relevant. This is explained by the fact that such management tools allow active influence on employees in order to solve their tasks in the direction of achieving common corporate goals, as well as to coordinate actions between these employees.

So, according to Ivakhnenkov S.V, the need for management follows from the fact that the enterprise “... is a system with a division of labor, in which the setting of the goal and its realization are carried out by different people (groups of people)” [1]. According to Ivanilov A.S., enterprise management is an activity aimed at coordinating the work of other people, work collectives, which is considered to

be a complex system [2, p.189]. On the contrary, Yarkina V. [3] is of the opinion that the enterprise management traditionally consists in the purposeful impact on the collective of people with the purpose of organizing and coordinating their activities in the production process. Sardak A.V. and Dmitrenko G.A. divide the process of personnel management into two types of activities: management of the entire enterprise, taking into account interaction with the external environment, and management of people (personnel) working in the enterprise [4, p.20; 5, p.35]. Unfortunately, among the considered definitions of the personnel management process, as well as among the analyzed definitions of the term “enterprise management”, any aspects of staff motivation are not taken into account.

The results of the analysis of scientific approaches regarding the consideration of personnel motivation in the enterprise management system are shown below (See Table 1).

The basic models of personnel management, unfortunately, do not always clearly define the role of the labor motivation system, namely: it is a social model in which the functions of personnel management are reduced to taking care of the state of physical and mental health; it is a legal model in which the main tasks of personnel management are to control and to regulate the state of the performance of labor relations; it is a strategic model that brings HR-management to the level of the source of the formation of the personnel potential of the enterprise, as the most important condition for its competitiveness [6].

If we look at the development of the HR-management paradigm, we will see constant expansion and complication of functions and tasks by adding new areas of responsibility. Thus, everything began with the paradigm of the scientific organization of labor known for its simplistic approach to regulating social processes with an emphasis on the effective use of the employee as a component of the material resource of the enterprise. The paradigm of human relations has shifted the focus of attention to the development of employees' abilities with simultaneous leveling of the individuality of each employee. When forming the paradigm of contracting individual responsibility, a complete reflection of the essence of the previous one took place with a shift in attention to the individual abilities and self-development of each employee. It is interesting that the modern paradigm of command management system again returns to the ability of the individual to work in a team with simultaneous attention to the issues of self-development and the formation of the creative potential of employees.

However, it should be emphasized that in order to manage the enterprise as a system where the management body acts as the governing body, first of all, it is necessary to coordinate the object, that is, the personnel (or the personnel of the enterprise), on the basis of the development of the motivation system in order to achieve the enterprise's goals. As we have already seen, it is completely invisible in the above-mentioned models and paradigms of personnel management.

Table 1

**Analysis of scientific approaches to the consideration  
of personnel motivation in the enterprise management system**

Authors [sources]	The main elements in the enterprise management system	Specifics of consideration of motivation in the framework of the personnel management subsystem of the enterprise
R.V. Feshchur, V.Yu. Samuliak, [7, p.101, 103]	Organizational structure, personnel, information and technical means	The subject of system management is the management of the enterprise while the object is the production personnel, motivated through wages in a direct form or a share of profit for interest in achieving management objectives.
A.O. Razdoroshnyi [8]	Personnel, production, marketing, finance and investment management	In order to achieve the set goals, the subject of management influences the object (personnel) with the help of motivation tools. To achieve the objectives of the enterprise, the subject of management affects the object (personnel) in order to ensure proper cooperation of labor between employees through motivation tools
Analysts of the international company «UP Trading», [9]	Management of the core business of the enterprise, as well as its support activities, personnel management, finance, logistics, sales management and marketing	Through motivation it is possible to ensure the participation of all employees of the enterprise in achieving the goals, by using incentives for effective interaction between them.
O.V. Skopin i N.L. Nazarova [10]	Management of personnel, information, technology, technical means, finances	The subject of management through the use of the "motivation" function to influence the enterprise personnel tries not only to stimulate employees to achieve certain goals, but also to adjust interaction between the employees of all structural units of the enterprise to optimize the existing organizational structure.
I.N. Drozdov [11, p. 35, 40]	Human, material, technical, information, regulatory and legal components	Human, material, technical, information, regulatory and legal components

The established scientific problems of superficial disclosure of the role of the personnel and its motivation in the development and management of enterprises lead to the need to justify and prove the following paradigm: the development of the enterprise depends on the perfection of the personnel management system. Within the framework of this system, a subsystem of personnel management motivated to achieve the goals and objectives of the enterprise on the basis of a scientifically based and logically structured system of staff motivation is recognized as a priority. Figure 1 illustrates schematically the essence of this paradigm.



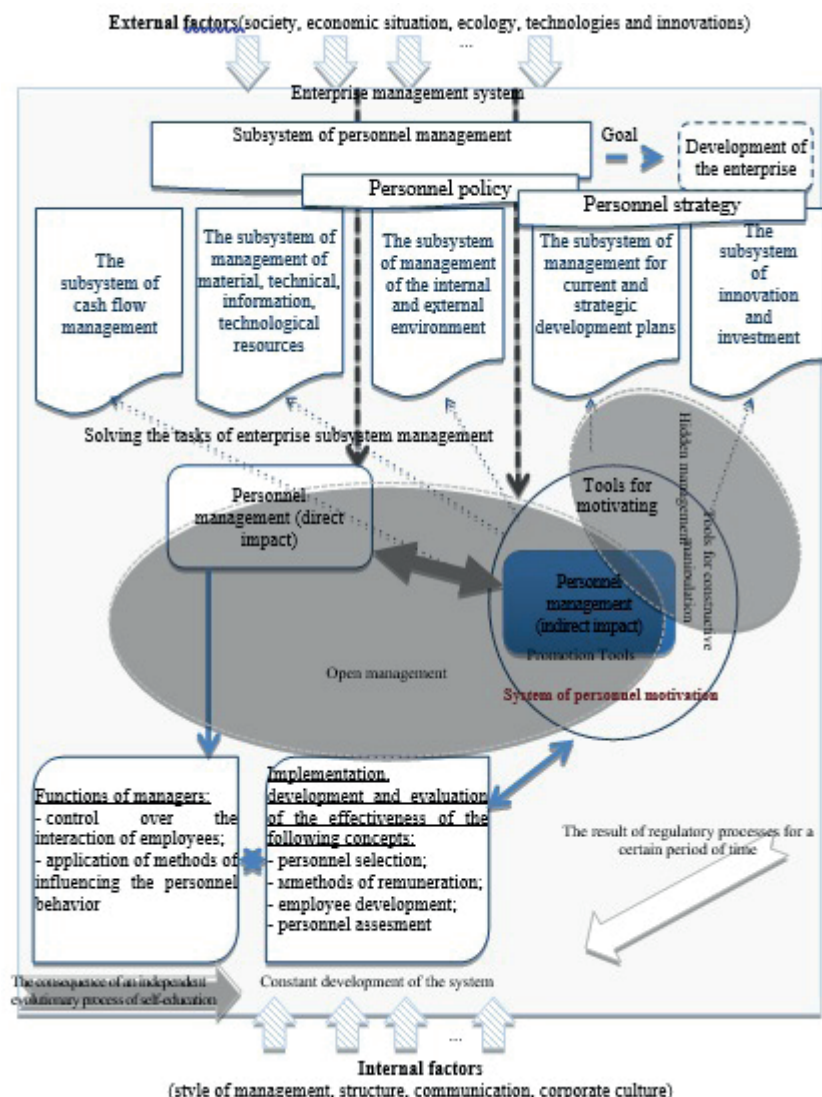


Fig. 1. The essence of the paradigm of personnel management of an enterprise on the basis of the development of a personnel motivation system (developed by author)

Demand for the paradigm of personnel management of the enterprise, in which the main emphasis is precisely on the development of the personnel motivation system, is achieved through changes in the mentality of the new generation. This generation is more pragmatic, freer in choosing a country of residence and work,

a field of activity, and psychologically less attached to different moral attitudes and values, unlike individuals belonging to previous generations. Obviously, the subsystem of personnel management can be viewed as a complex, open and dynamic management system, which is inherent in self-regulation.

Functional responsibilities entrusted to this subsystem, are the next ones: personnel management (direct impact) and personnel management (indirect influence). It is precisely indirect influence, in our opinion, that is the basis of the system of personnel motivation, which uses a wide range of motivational and stimulating measures.

Moreover, it is quite new for Ukrainian enterprises to use manipulation in personnel motivation processes. A survey of foreign corporations proves that “clever” manipulations with employees can solve those problems when tools of motivation and stimulation are powerless. Manipulation is considered in the context of this research from the point of view of managerial communication. In general, it is a process of hidden management that manifests itself in the psychological impact on personnel for the formation of intentions, representations, values, behavior of employees that are beneficial to the interests of the enterprise, and reduce the risks associated with excessive freedom of action, independence of employees from each other, or vice versa, the risks of over-control and excessive staffing.

Taking into account the objective existence of manipulative control in the content of the legal (staffing) management, we obtain sufficient grounds for considering its structure and mechanism in the same way as legal and open management. In addition, it is expedient to include it in the system of personnel motivation along with incentive and motivation tools. However, the exploitation of personnel and direct dominance over the person should not be identified with the manipulation of enterprise personnel at all.

Therefore, we consider it expedient to consider manipulation as a constructive, elegant, veiled instrument that reduces intra-organizational tensions and helps coordinate personnel actions towards achieving the company’s overall goals. The functioning of the personnel motivation system in turn ensures the solution of tasks to manage a number of other subsystems and is the driving force for general corporate development, besides it is achieved through an independent evolutionary process of self-education.

For direct and indirect impact on employees of any enterprise a number of scientific and practical methods can be used.

The methods of direct impact are oriented towards recognizing the need for labor discipline, a certain organization of personal activity, culture and the sense of responsibility, and are realized through the functions of the top-management team representatives to monitor the interaction of employees and the application of methods to influence the behavior of employees.

On the contrary, the methods of indirect impact on personnel are associated with the introduction, development and evaluation of the effectiveness of

concepts regarding the selection of personnel, the selection of the most optimal methods of reward, the development and evaluation of staff actions, the creation of a psychological and cultural microclimate in the workplace and, finally, the introduction of techniques from the “behavioral economy” (for example, tools of constructive manipulation).

It should be noted that it is the staff assessment that influences the change in the toolbox of motivation, stimulation and the need to attract manipulation. Actually, it is a peculiar push for the development of the entire system of motivation at the enterprise.

In addition, the set of tools in two cases is different in essence:

- for direct influence, the toolkit is based on the administrative subordination of the object to the subject management (decrees, regulations, standards required for execution, job descriptions, organizational schemes, valuations, orders used in the process of operational management);

- the tools of indirect influence, which, in our opinion, are the basis of the system of motivation of the personnel, they do not have an automatic effect on the object of management, and their final effect is sometimes difficult to determine (economic norms of activity, system of material incentives, establishment of moral sanctions and encouragement, pleasure of cultural and the spiritual needs of workers, the establishment of social norms of conduct, social protection, manipulation, etc.).

So, proceeding from these scientific problems, and taking into account the essence of the advanced paradigm presented in Figure 1, it is important to clarify the concept of “personnel motivation”, which is considered by us as follows:

- from the point of view of substantive theories, the motivation of the personnel is the conscious action of the enterprise employees on the improvement of the subsystems in the enterprise as a system with the purpose of the development of the given subject of management; under the influence of incentives, allows to satisfy the own needs of the personnel and the needs of the enterprise as a whole;

- from the point of view of procedural theories, motivation of the personnel is the process, which is oriented on the improvement of the subsystems in the enterprise system by using incentives for the qualitative performance of functional duties, according to which the needs of the personnel are being met in obtaining just remuneration for work and provision a decent standard of living, and the needs of the enterprise in its further development at the same time.

The main subjects of this system are the HR-manager (responsible for implementing the ideas of the manual on personnel and corporate culture) and other line managers (responsible for the actions of their employees). The task of the HR-manager is to support the policy of management and to report it to the knowledge of the employees of the enterprise through the introduction of the corporate culture system. In addition, HR-managers are engaged in marketing personnel, human resource development and curatorial management.

Obviously, in the first and second definitions, the main drivers of impacts on

employees are incentives. Therefore, the main objective of the development of the system of motivation is to satisfy the needs of the personnel and the enterprise in the development by improving subsystems in the modern enterprise. Thus, the above-mentioned definitions fully correspond to the well-founded paradigm of introducing personnel management.

However, it should be noted that the “motivation of personnel” in any enterprise has the form of the system, because “conscious actions” of the management or the labor collective are possible only through the introduction of a variety of different methods and tools, software, a set of incentives, the creation of the necessary cultural and psychological environment and the use of other levers (including manipulation techniques) to achieve the objectives of the enterprise.

Thus, the system of personnel motivation can be considered as a set of interrelated elements separated from the enterprise environment into a subsystem of personnel management, but one that is necessarily in close interaction with other management subsystems, the functioning of which ensures the use of a set of tools for coordinating, stimulating and manipulating personal interests, the needs, the goals of each employee in the direction of achieving a specific set of goals of the enterprise.

In this context it should be noted that:

- first of all, stimulation is an effective tool and a decisive external factor affecting the employees in the process of motivation development;
- secondly, different types of motivation can be used for this impact on the personnel;
- thirdly, in practice, it is necessary to use manipulation in personnel motivation processes, along with other techniques.

The classification of the possible types of motivation can be created based on the essence of modern theories of enterprise management in accordance with the proposed paradigm of personnel management (See Figure 2).

Thus, based on the studies carried out, the following conclusions can be reached:

- the role of staff motivation is to balance the process of management and the process of development of personnel and enterprise simultaneously;
- enterprise management can be carried out in two forms: open (legal) and hidden one, which in turn are based on the use of various tools for incentives, motivation and constructive manipulation, and provide the creation of concepts for the selection of personnel; methods of its remuneration; development of employees and a general assessment of their work – this is the main idea of the proposed paradigm;
- for the development of the personnel motivation system, and, accordingly, the development of the personnel management system of the enterprise, appropriate methods of material and non-material motivation can be used by selecting incentives, using constructive manipulation tools, which allows to maximize the effectiveness of achieving the objectives of the enterprise.

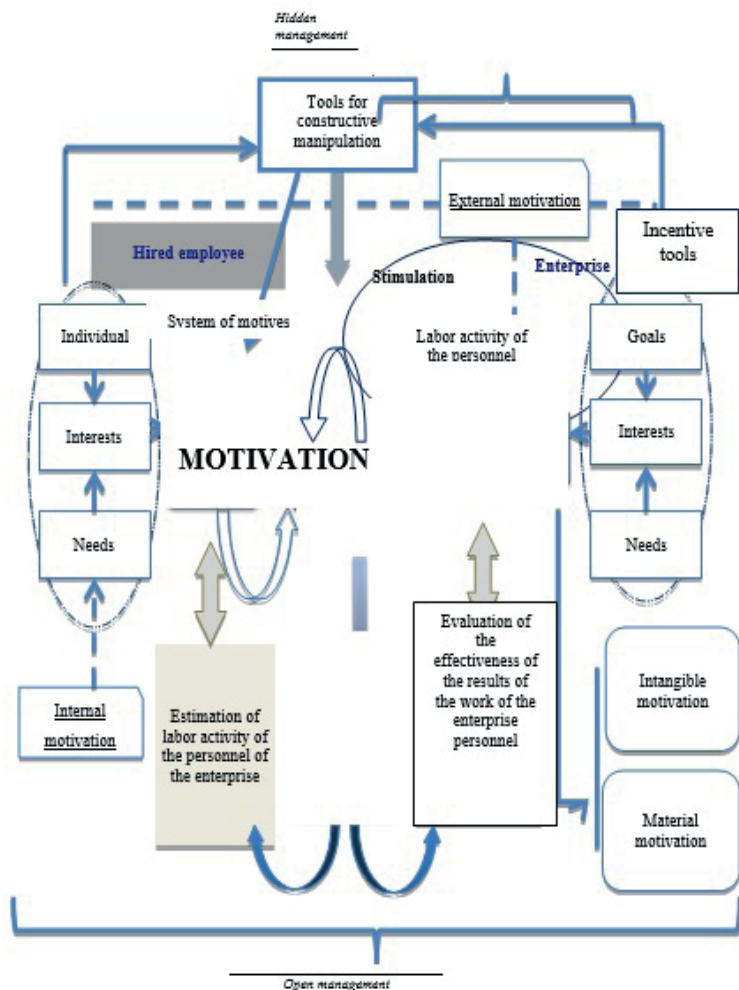


Fig. 2. Schematic depiction of the personnel motivation system in accordance with the proposed paradigm of personnel management (developed by author)

It is obvious that the proposed paradigm of personnel management of the enterprise based on the development of the personnel motivation system has theoretical and practical significance, however, for its implementation in the activity of a particular enterprise, it is necessary to take into account the specifics of the requirements for personnel, distinctive from other conditions for the formation of mechanisms for motivating it to productive and efficient activity, specific features of the organizational and managerial structure, the form of organization and the

specifics of the operating activities of the enterprise.

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## **CORPORATE TAX MANAGEMENT AS A BASIS FOR ENSURING FINANCIAL SECURITY OF THE ENTERPRISE**

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The problem statement. The system of taxation of any modern enterprise that is constantly undergoing changes has a direct impact on the financial and economic activities of the given business entity. The instability of economic conditions and the strong desire of the government to maximize the state budget causes excessive tax burden on business entities of different types and ownership forms. These circumstances make it necessary to organize tax management at the enterprise level, that is, to ensure proper functioning of corporate tax management.

The analysis of recent research and publications. The key issues related to the management of tax relations are defined in the scientific papers, written by such famous Ukrainian and foreign researchers as: V. Andryshchenko, A. Atamanchuk, V. Vyshnevskiy, D. Veremchuk, A. Yelisieiev, T. Yefymenko, A. Zahorodnii, Yu. Ivanova, A. Kyzyma, A. Koval, A. Krysovaty, N. Kreinina, I. Lunin, V. Melnyk, I. Panaseiko, A. Sokolovska, L. Tkachyk, V. Fedosov, A. Frandynskyi, A. Shablysta and many others. At the same time, the lack of sufficient theoretical and methodological framework for assessing the impact of taxation regimes on the financial performance of business entities as taxpayers, naturally requires continuing further research related to the prospects for the development of corporate tax management in the current conditions of instability in tax legislation and the existence of a number of economic and social factors of negative influence on the level of their financial security.

The purpose of the study. The purpose of the paper is to substantiate the need for corporate tax management and to determine the main directions for managing of the tax payments of an enterprise.

Presentation of the basic material with a full justification of scientific results. In modern conditions of management, a significant part of enterprises become bankrupt as a result of miscalculations in financial management, as well as inadequate allocation of resources and efforts to use them, various inaccuracies in plans and forecasts. Tax security is considered to be an integral part of the economic security of the state as the recipient of taxes to the revenue side of the budget, as



well as the economic security of an enterprise as taxpayer. The tax safety of the enterprise is based on the assessment of tax risks and tax burden by using special methods and tools for the estimation of their impact on economic security and the total efficiency of the enterprise. This is what determines the need to manage taxes at the microeconomic level.

In our opinion, the strategy of the enterprise should have a set of legal success factors that allow for an adequate assessment of the level of tax instability and directly manage it in decision-making process. In general, tax management is often viewed as a management process by using the methods of the tax mechanism influence on the existing tax system with a view to realizing the tax policy. Moreover, the tax management is aimed at combining the subjective intentions of taxpayers with actual circumstances and the organizational effectiveness of the tax system as a whole that is combining the ideal desire with real opportunities under existing conditions.

Tax management, according to L. Tkachyk, should be considered in three aspects: first of all, as a tax management system; secondly, as a certain category of people or the social layer of those who carry out work on tax management; thirdly, as a form of entrepreneurship (i.e., corporate and personal tax management) [7].

The structure of tax management includes not only state tax management, but also corporate and personal tax management.

Corporate tax management concerns directly the taxpayer as a legal entity, and provides for the tax payment organization and optimization of tax payments at the enterprise.

Despite the results of recent scientific studies of such well-known scientists as A. Atamanchuk and N. Pritulyak, we consider it expedient to determine the following components of corporate tax management in Ukraine:

1. Analysis of the external tax environment and of the projected regulatory and legal changes in the current legislation and international conventions and taxation. The legal basis for management decisions ensures their protection and the legitimacy of the revenues of the enterprise, therefore the tax legislation ensures the implementation of the main functions of tax management.

2. The development of the enterprise tax strategy (or tax forecasting) in accordance with the general strategy of economic development and the forecast of external tax conditions and benefits. In the process of formation of the system of goals and long-term target indicators of the enterprise for a long-term period, the priority tasks for certain aspects of tax management should be determined. Tax forecasting provides for the development of a common tax strategy in the process of formation of long-term development goals of an enterprise, taking into account possible changes in tax legislation and economic policy of regional bodies of local self-government.

3. Tax planning. The development of the system of enterprise plans provides for the optimization of production alternatives taking into account the tax burden and



its redistribution in the current market environment. The initial information, which is used for continuing tax planning, includes as follows: target standards of the enterprise economic strategy; changes in tax laws that are announced or forecasted; planned volumes of operating activities; indicators that characterize the market situation; the results of budgeting of expenses and tax accounting.

4. The tax monitoring of business operations. Constant operative analysis of sources of expenditure, tax expertise of projects and contracts, and the development of tax schemes for making settlements allow to influence significantly the tax base, to manage its formation, to legalize minimization of tax liability of the enterprise in specific situations.

5. Tax accounting and reporting. Due to its features and a stable relationship with accounting, an information base of tax management is being formed.

6. Controlling the implementation of decisions in the field of tax management. Coordination of interaction of various functional structures of the enterprise, as well as prompt response to legal innovations and current internal situation, and regulation of production strategies and tax budgets are aimed at achieving the set goals.

7. Organization of interaction with internal structures and external entities.

8. Evaluation of the results of tax management [1, 6].

In order to assess the state of the tax environment in an objective way, it is necessary, in our opinion, to develop certain standards for measuring of the tax accounting system effectiveness at the enterprise. Therefore, it is necessary to establish the standard (permissible) values of indicators for the existing conditions of functioning of the enterprise – the taxpayer and the maximum permissible values of deviations from them.

At the same time, we support the scientific position of A. Yelisieiev, that “the list and reference values of the indicators fixed in the standards should be established individually for each enterprise, taking into account its financial capabilities, total structure determination, the interests of the enterprise management team etc.” Among the above indicators, the indicator of the magnitude of the tax burden is extremely important. Excessive tax burden is a negative factor of the tax policy, which does not allow enterprises to function properly and ultimately restrains the activity of business entities. In turn, an excessively low level of tax burden is a shortage of tax payments, which does not allow the state to fully perform its functions. Under the optimal level of the tax burden, one should understand nothing less than the level at which taxpayers, in respect of their solvency agree to pay state tax payments, receiving the public goods of high quality from the state.

The tax burden indicator at the enterprise level plays an important role in the enterprise's economy, as it is a study of the effects of the explicit and implicit impact of taxes on the welfare of their payers.

According to the recent research of A. Frandynskyi, the tax burden on the profit tax and the tax burden on VAT tax do not take into account the tax burden on the

enterprise as a whole as an integral indicator, because only two types of tax should be considered. Therefore, other tax payments occupy a significant share in the total tax payments [8].

By citing one of the scientific papers, A. Zahotodnii points out that the method, proposed by M. Kreinina, is related to the comparison of the tax and the source of its payment. In this regard, it is advisable not to include VAT taxes and excise taxes in the tax burden at all [2].

In turn, O.V. Koval notes that the calculation of these indicators does not take into account the tax burden in general, since two types of taxes should be considered only. However, in this context it should be mentioned that some other tax payments occupy a significant share in the total tax payments. In particular, it is necessary to take into account a single social contribution, which is included in the enterprise's expenses in the amount of 22 % of the accrual of profits to the wage fund [4].

Thus, there is a significant amount of methodological approaches to determining the tax burden, which differ both in the hierarchy of the problem and in the set of indicators used in the calculations. We believe that the main drawbacks of these methods of calculating the tax burden are related to the fairly large number of factors, which are as follows:

- the complexity of creating a single unified methodology for calculating the tax burden, since there are different types of taxation in the tax system of Ukraine depending on the conditions and nature of a certain activity;

- in the methodology for calculating the tax burden, there is no single approach to the quantitative and qualitative assessment of the impact of tax payments on the financial condition of an enterprise;

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- in the methodology for calculating the tax burden, there is no single approach to the quantitative and qualitative assessment of the impact of tax payments on the financial condition of an enterprise;

- when calculating the tax burden, other taxes and fees paid by the business entity – the payer of taxes are not fully taken into account;

- the absence of a control indicator of the tax burden, which makes it impossible to compare the level of taxation at various enterprises and other negative factors due to the specifics of the activities of the taxpayer and a combination of external factors of legislative and socio-economic nature.

We share the position expressed by Kyzyma A. [3] that an efficiently organized tax planning system allows to optimize tax payments. Temporal coherence of activities and optimization of this system in the direction of minimizing taxes legally reduces financial costs and strengthens the financial position of the enterprise as a whole [3].

It is indisputable that the need for tax planning is laid down in the very essence

of the tax law, which provides for specific tax regimes for different situations, allows for various methods for calculating the tax base and offers various tax benefits to the taxpayers. Tax planning has an objective character dictated by the requirements of market competition and the desire of the business entity to reduce tax expenses and increase its own funds for the further development of entrepreneurial activities.

Basically, tax planning is identified with the concept of an enterprise tax policy, without using the latter concept at all. In this case, there is a second approach, when tax planning is equated with planning as such which is carried out by the enterprise as a whole and includes forecasting.

Both approaches in our opinion do not fully reflect the concept of tax policy and planning, although it can not be said that tax policy and planning are the same, since the tax policy of the enterprise is much broader and more multifaceted than tax planning is. However, it is not advisable to consider these approaches separately, since the entire tax policy is based on tax planning and forecasting. At the same time, priority tasks of tax planning should be defined: preservation of working capital; increasing the overall efficiency of economic activity; prevention of negative consequences of management decisions; control over the effectiveness of schemes for minimizing taxation and so on.

Depending on the selected criteria and business orientations, corporate tax planning, according to I. Panaseiko, can be classified according to the following types: illegal and legitimate corporate tax planning [5].

The process of tax planning consists of several interrelated stages, which should not be viewed as a clear and unambiguous sequence of actions that necessarily guarantee a reduction in tax obligations. This is due to the fact that tax planning successfully combines the elements of science and an art of financial analytics.

In practice, all these stages of tax planning can operate together or separately from each other, depending on whether the enterprise is created, or already functioning. Moreover, these steps should be taken into account when modeling the enterprise's tax burden at the optimal level for it, depending on the stages of the enterprise development and the tasks to be performed.

The realities point to the fact that of the two types of tax planning the first one is used more often. This can be explained by the inexpediency of long-term planning, and not by the lack of the desire of business entities to engage in planning activity. At a time when there are constant political, economic or social changes and changes in legislation, even current planning can not be accurate. That is why to predict exactly what will happen in 2-3 years seems to be unrealistic.

The generalization of modern practice and pragmatics of the organization of tax relations of enterprises as taxpayers with fiscal bodies gives grounds to conclude that the most common ways of documenting the processes of tax planning are reflected in:

- tax payment calendar, which can be used to monitor the timeliness and accuracy of tax payments;

- order on accounting policy of the enterprise;
- job descriptions for all participants in tax relations;
- internal rules (standards) of tax planning at the enterprise.

The tax payment calendar is developed on the basis of the current tax forecast taking into account the specifics of the mechanism for collecting and charging an individual tax. To date, there are various approaches to the construction of a tax payment calendar, the generalization of which allowed us to propose our own vision of the form of the tax payment calendar (Table 1).

Table 1

**Tax payment calendar of the enterprise “A” for the period \_\_\_,  
UAH [authors’ own development]**

Period	Estimated payment amount	Type of taxes				
		Income Taxes	Value added tax	Ecological tax	Ecological tax	and so on
January						
February						
March						
... etc.						
Total amount per year						
Sources of means for payment of taxes						
Total revenue from sales						
Cost of sales						

*Source: [authors’ own development]*

Tax planning should be identified as one of the defining elements of the formation and development of the tax strategy of the enterprise as the taxpayer. The development of a strategic tax plan is closely related to the tax policy of the enterprise and its other strategies. Thus, the production strategy of an enterprise depends on the taxation, since it must develop its production taxation strategy based on the state taxation system, tax rates and the amount of tax payments. The amount of payment for most tax payments is determined by the total volume of enterprise activity. At the same time, a direct relationship exists between the strategy of tax payments and expenditure strategy, foreign economic activity and incentive strategy of an enterprise.

We support the position of many famous scientists, in particular S. Panaseiko and I. Sanina, that the development of the tax payment strategy, as an integral part of the overall financial strategy, should include the following stages [5, 7].

So, at the first stage, the overall validity period of the tax payment strategy is determined. This stage depends on the period and conditions of the overall strategy.

At the second stage, external factors that influence the tax payments of the enterprise should be investigated. First of all, this concerns the legislative base of the state and its stability.

The third stage provides for the formation of strategic objectives of the tax policy of the enterprise.

Within the framework of the fourth stage, the tax policy, plans for certain types of taxes and activities should be developed.

The fifth stage includes the development of various measures to achieve the tax policy strategy and its implementation, as well as the definition of the management system and the composition of the executors of the strategy, goals, objectives and activities.

At the sixth stage, the efficiency of the developed tax policy strategy is assessed.

This stage is the final one, so it is conducted in different directions: coordination of the tax payment strategy with the overall economic strategy of the enterprise, as well as with its development strategy; conformity of the predicted development of the environmental environment to actual changes; an assessment of the internal linkage of tax payment strategies with such strategies, as the financial, production strategy and others; the implementation of tax payment strategies (this relates to the possibility of its overall implementation by directions and in time); effectiveness of the developed strategy.

**Conclusions.** Summing up the conducted research it should be mentioned that the tax management system is an important element of the overall enterprise management system. If it is based on strict observance of laws, it will be able to ensure fair and objective collection of taxes and to ensure a high level of financial security of the enterprise.

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## **DETERMINING THE ADMINISTERING RADIUS AND MANAGEMENT DENSITY FOR BUSINESS PROCESSES OF THE CORPORATIONS**

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The problems of developing and improving the systems of administrative management of the enterprise based on up-to-date theoretical and methodological approaches to streamline management activities aimed at forming the optimal organizational and economic structure of “business-production” systems, identifying the unused resources of business companies, strengthening the synergistic effect to their management systems were considered in the monographic works of several national and foreign scientists, in particular: M.P. Voynarenko [1, page 50]; I.G. Krupelnyska [2, p. 52]; I.I. Muzur, V.D. Shapiro [3, pages 178-251] etc. Meantime, in our opinion, there still remain unsettled issues regarding the possibilities for improvement and development of national corporate business companies (hereinafter referred to as the corporations) with purposeful optimization of their business administration.

The goal of study is to deepen the theoretical and methodological principles in respect of optimizing business processes of business administration in the organizational and economic development of the corporation.

**Basic material thesis.** Summarizing the results of theoretical and practical

aspects of the research of presented by national and foreign scientists upon improvement of business administration processes in the management of organizations [1, pages 49-51; 2, page 52; 3, pages 178-251; 4, pages 17-19 etc.], with regards to current changes in several laws of Ukraine [5; 6; 7], in our opinion, the category of “business administration” can be defined as the activity of a business entity (enterprise, corporation, company, firm etc.), aimed at systematic step-by-step coherence of functioning all the processes of its production and economic activities by means of rational management organizations of business structures at different levels of the corporation.

Activity performed by managers of such subdivisions or departments of the corporation has been assessed on the grounds of efficiency of operating the funds entrusted thereto.

Therefore, it is possible to emphasize importance of the business administration principles as a component of management tools in view of intensification of the competitive confrontation in the market space and serving as grounds for theoretical and methodological approaches to formation of the organizational and economic structure (regarding tasks of integration and decentralization) and functions of today corporations in the context of business administration of business processes regarding the rational use of their productive and economic potential. In this regard, let us define the fundamental principles, which in fact serve as the conceptual basis for prescribing rules of conduct and behaviour of the management system of an up-to-date corporation. In our opinion, basic provisions on the rational organization of situational control and regulation in the business administration of business processes in order to secure effective management of the production and economic potential of the corporation should be formed on the grounds of systematic principles used for fixing mandatory rules of conduct and behaviour in order to coordinate and regulate activities of all the subordinated structural business units (SBUs):

- 1) Compliance with the general purpose of the development and/or reorganization of business processes according to a logically justified sequence of transition from the goals of the corporation to its structure;

- 2) Adaptability of the structure and functions, i.e. ability to adapt effectively to new tasks and the conditions for their solution (detailed content of the structural and functional blocks of the corporation and its individual SBUs shall be reformatted constantly in line with changes in the consumption market, its conditions of operation and load);

- 3) Possibility of effective impact on the final technical and economic indicators of business projects at all the stages of project cycles, including at the earliest, i.e. pre-investment stages of project analysis;

- 4) Security of the optimal level of centralization of corporation management, which is usually based on reducing the number of functional connections, closed on top management and clear separation of management functions and improvement of the structure of the management apparatus (rationalization of “management-

subordination” and “centralization-decentralization” relations, organizational mechanism of coordination and control system; clear regulation of the SBU activity; appropriate adjustment of the structure and content and drafting new regulations on the structural units and offices);

5) Systematic use of the concept of Project Management with in-depth and comprehensive elaboration of the initial (pre-investment) stage of management projects for the purpose of developing and optimizing production and economic programs as separate SBUs and corporations as a whole;

6) Effective support and coordination of projects aimed at reducing project cycles;

7) Availability of internationally certified quality system of products and services of the corporation;

8) Regular work on improving the integral system of corporate and production-economic planning “with regards to national peculiarities and experience of the principles and recommendations required for improving the corporate management practice in Ukraine” [7];

9) Availability of a mechanism for organizing a flexible project financing system at the corporate, national and international levels;

10) Systematic use of up-to-date information technologies;

11) Marketing system development with the transfer of its functions of improving the range;

12) Existence of a subdivision being responsible for the entire complex of issues related to so-called public relations;

13) Existence of a system of personal responsibility for performance of each function of management of production and economic activities of the corporation;

14) Structure of the corporation shall provide a standard level of subordination.

Transfer of the corporation departments to new economic relations (in the status of the Central Department) facilitates the allocation of newly formed working capital in the amount of their remaining balances at the moment of making the decision to move these units to a new status.

In our opinion, it is advisable to form a system of centres of responsibility of a modern corporation based on relatively independent production and commercial divisions (SBUs) which combine all functions and activities necessary for development, production and sale of any particular type of product or group of products: revenue centres; profit centres; cost centres; investment centres. In such case, the central place and the main role assigned to the corporate centre of the corporation, where one of its key tasks is monitoring and diagnostics of assessment of the current and anticipated state of organization and management of the company based on a certain set of quantitative assessments of organizational and managerial analysis of the enterprise [3, pages 200-210] (Fig. 1).



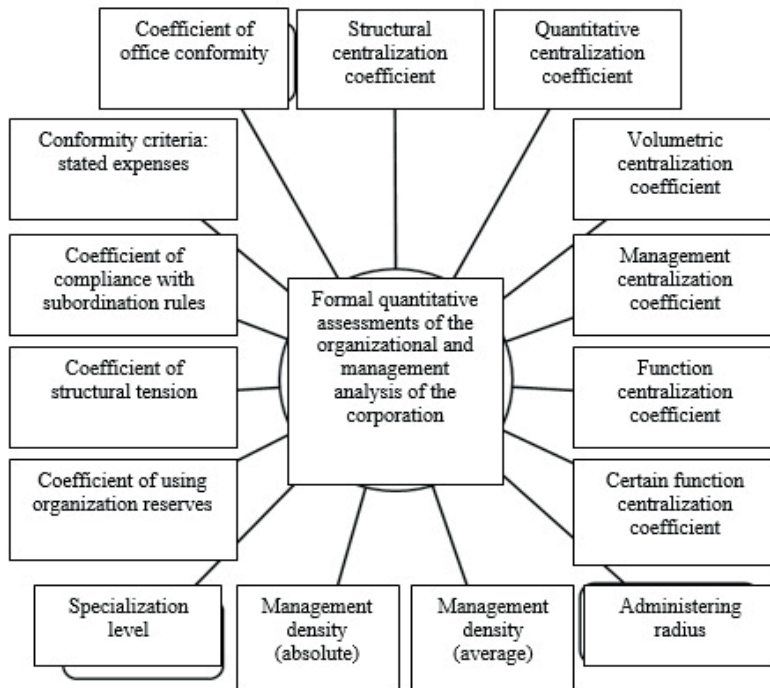


Fig. 1. System of formalized quantitative assessment of the organization and management analysis of the corporation

Let us consider the example of individual specifications of the level of business administration of their business processes based on the use of such key indicators of the proposed system of formalized quantitative assessments of organizational and managerial analysis shown in Fig. 1, as the radius of administration and the average density of the corporation management with its several SBUs in different strategic zones of management.

The above indicators of the system of formalized quantitative assessments of organizational and managerial analysis of corporations are recommended to be calculated under the following formulas:

1) average radius of administering the corporation ( $\bar{R}$ , km):

$$\bar{R} = \sum_{i=1}^n A_{R_i} R_i / \sum_{i=1}^n A_{R_i}$$

where  $A_{R_i}$  means annual scope of works in the remote (i) SBUs, representative

office, subdivision (at the object);  $R_i$  means the distance to SBU;  $n$  means the number of SBUs, including the corporate centre (main branch of the corporation).

2) average density of the corporation management ( , monetary unit per square km):

$$H_C = \frac{A_O}{\pi \cdot (\bar{R})^2}$$

where  $A_O$  means annual scope of works in the remote territory, monetary units:

$$A_O = \sum_{i=1}^n A_R$$

In this case, the optimum value of the average administering radius ( $\bar{R}_{optimal}$ ) of the corporation can be determined by the formula (1) with regards to the coordinates of individual remote SBUs on a geographic map calculated by the method of gravity center [8]:

$$\bar{X}_{optimal} = \sum_{i=1}^n A_R X_R / \sum_{i=1}^n A_R ; \quad \bar{Y}_{optimal} = \sum_{i=1}^n A_R Y_R / \sum_{i=1}^n A_R ,$$

where

$$R_i = \sqrt{(X_R - \bar{X}_{optimal})^2 + (Y_R - \bar{Y}_{optimal})^2}$$

However, in practice, usually real values of the coordinates ( $\bar{X}_{real}; \bar{Y}_{real}$ ) of the average administering radius ( $\bar{R}_{real}$ ) of a currently existing corporation do not coincide with the corresponding optimal coordinates determined by the method of gravity centre.

Therefore, the distances to individual SBUs, with regards to actual values of coordinates ( $\bar{X}_{real}; \bar{Y}_{real}$ ) of the average administering radius of a currently existing corporation, should be calculated according to the formula:

$$R_i = \sqrt{(X_R - \bar{X}_{real})^2 + (Y_R - \bar{Y}_{real})^2}$$

According to the foregoing, we may propose the following target function for optimizing the level of average density of management of the corporation with the branched-off network of SBUs:

$$F = \sqrt{(\bar{X}_{real} - \bar{X}_{optimal})^2 + (\bar{Y}_{real} - \bar{Y}_{optimal})^2} \rightarrow \min$$

As shown by the target function (6), by means average administering radii  $\overline{R}_{optimal}$  and  $\overline{R}_{real}$  which determine the corresponding density of the corporation management with the branched-off network of the SBUs, it is possible to present some aspects of the integrated specifications (in the form of average circles of administering efficiency level) in order to assess the results of the situational control process and regulation of business processes in business administration, in order to secure the effectiveness of implementing the potential of the corporation management as a whole.

Therefore, if the circle area formed by means of the average administering radius  $\overline{R}_{optimal}$  :

$$S_{optimal} = \pi \cdot (\overline{R}_{optimal})^2$$

is accepted as a standard integrated assessment of the impact of administering density efficiency level, correlation between cross-sections of the areas  $S_{optimal}$  and  $S_{real}$  (formed by means of the average administering radius  $\overline{R}_{real}$ ) against the area  $S_{optimal}$  [9]:

$$E_{admtl} = \frac{S_p}{S_{optimal}} = \frac{1}{2\pi \cdot R_{optimal}^2} \cdot [R_{optimal}^2 \cdot (F_{optimal} - \sin(F_{optimal})) + R_{real}^2 \cdot (F_{real} - \sin(F_{real}))]$$

may be treated as an integrated assessment of the impact of administering density efficiency level on management of the corporation with the branched network of SBUs.

Fig. 2 shows a conditional example of determining the level of average radius and density of administering the corporation business process (with main branch located in Krryvyi Rih and SBUs located in other cities in the regions of Ukraine).

Fig. 3 shows a conditional example of optimizing business processes of the corporation in order to increase its efficiency of using its production-economic potential based on improving the value of average radius and density of administering the corporation (by formulas (1) - (8)), with regards to actual values of their geographical coordinates.

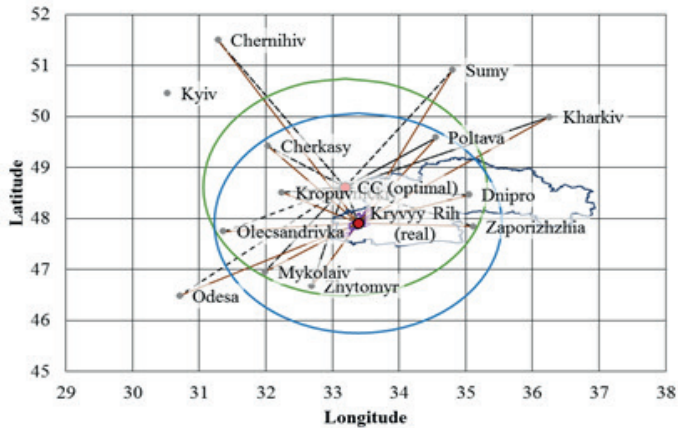


Fig. 2. Average areas of administering the corporation regarding the coordinates of real and optimal administering centres before optimization of SBU business processes

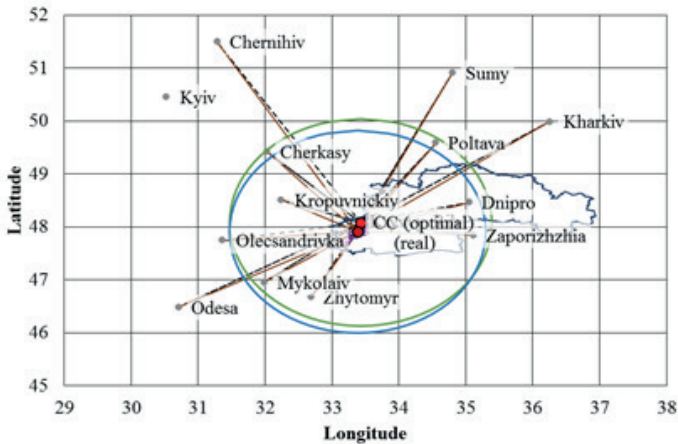


Fig. 3. Average areas of administering the corporation regarding the coordinates of real and optimal administering centres after optimization of SBU business processes

In order to demonstrate the essence of the proposed methodological approach aimed to assess efficiency of using the potential of the corporation in order to optimize the functioning of its SBUs in the context of business administering its organizational and economic development, it is assumed that distances from the administering centres to individual SBUs are calculated by formulas (4) and (5). Meantime, it was assumed that annual volumes of work performed in the remote (i)

SBU's of the corporation for Variant 1 are equivalent, while for Variant 2 they are simulated, so the target function (6) could reach the minimal value.

Results of the calculation of the integrated assessment of the impact of administering density efficiency level for two variants, in the context of improving the organizational and economic management of the corporation with the branched-off network of the SBU's, as conditional example (Fig. 2, Fig. 3), are given in the Table 1

*Table 1*

**Results of calculating integrated assessment of the impact  
of administering density efficiency level, in the context of updating  
the corporation organizational and economic management**

		Variant No.	
		Variant 1 (fig. 2)	Variant 2 (fig. 3)
Average administering radius, km	optimal	236,51	217,47
	real	239,58	212,57
Distance between optimal and real administering centres, km		81,01	20,3
Administering density in respect of corporate centre, monetary unit per square km		7,21	40,15
Integrated assessment of the impact of administering density efficiency level, unit share		0,79	0,92

According to the results of a conditional example of optimizing business processes of the corporation in respect of increasing efficiency of the use of industrial and economic potential of its SBU's, we got an increase in the

integrated assessment of the impact of administering density efficiency level by 16.46%. (correlation between Variant 2 and Variant 1).

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## **CORPORATE MANAGEMENT: INFORMATIONAL ASPECTS**

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Information as a phenomenon is a special universal immaterial good, which, depending on its content, form, purpose and application sphere, can become an effective business activity influence tool. On the one hand, well-used information can become a powerful engine for enterprise` progress and development, in the other - a devastating force. In both cases, information at the stakeholders hands serves as something to reach a certain goal, so it is important to understand the role and importance of information within the business activities.

The corporate organizations peculiarity is that their authorized capital is divided into shares among owners, the number of which can be very significant (depending on the organizational and legal form of the partnership). Each shareholder has equal rights and can exercise it at his own discretion. Naturally, a situation arises when each owner wants to realize and protect his property interest - to get the most revenue from his property. Each participant understands that the activity stability and the corporate organization development is a way to profit and increase the value of its share within authorized capital in general.

Access to corporational information can become an effective instrument of influence on the corporate management mechanism in order to increase its efficiency,

obtaining the shareholder the maximum income from their property, and at the same time as an instrument of protection against unlawful violations on it.

As known, information becomes strategic only if it has the following features: authenticity; completeness; affiliation; topicality; the legality of receiving, using, distributing, storing and protecting. In order to have all the features above and become a way to achieve the objectives, the legislator gives the owners the relevant powers in other words – the legal opportunities for obtaining relevant information about the corporation. These powers derive from the content of legislation and are conditioned by the relations that arise between a business organization and the corporate owner` rights in relation to it. These legal possibilities themselves are informational component of corporate management.

Conditionally, they can be divided into 2 groups according to origin field: - within the sphere of business organization management; - within the authorized capital according to property shares redistribution between owners of business organization.

The Ukraine legislation establishes the right of the company participant to take part into the company management as a direct personal participation in the activities of the company` management bodies - general meetings, supervisory board, boards, revision commissions, etc., and indirectly - through the above mentioned governing bodies formation by electing their members or appointment their representatives, who manage/manage on behalf the owners` interests.

Information about the direct activity of management bodies arises within the business managing field and includes information on:

- the company management bodies structure, the list of their officials, the composition and their election (appointment) procedure;
- the legal documents content according the basis of which they carry out their activities;
- dates, places, meetings agenda;
- the results of their direct activities and decisions taken.

The Ministry of Justice letter dated January 24, 2005, № 19-45-1626 / 19-45-1628, provided an explanation of Article 10 part 1 of the Ukrainian Law «On Business Associations» and Article 116, Clause 5 Part 1 of the Ukrainian Civil Code, according to which the members of the economic partnership have the right, in particular, to receive information about the company activities. At the participant request, the company is required to provide it with annual balance sheets, reports on company financial and economic activities, audit committee reports, of the management bodies minutes of meetings, etc.

In clarifying of the National Securities and Stock Market Commission of Ukraine, from October 29, 2002, № 5 about «The procedure for the point «g» application from Law of Ukraine, Article 10 «On Business Associations» states that: «Providing shareholders with information about the company activities is a executive body` duty at a joint-stock company» [1].

Regarding information competence in the shares redistribution area within the company charter capital, Article 55 «On Business Associations» from the Law of Ukraine provides that the alienation in the direction to third parties of a shareholder's share (its part) with limited liability is allowed, unless otherwise established by the partnership charter. Thus, a participant of a limited liability company has the right to sell or otherwise withdraw its share (part thereof) in the authorized capital of one, several company's members or third parties [4].

Participants of the partnership enjoy the preemptive right to purchase a share (its part) of a participant according to proportion of their shares amount, unless the partnership charter or an agreement between the parties does not establish another procedure for the right exercise. Purchases are made at the price the share (part thereof) was offered for sale to third parties or taking into account other conditions. If the members of the partnership do not exercise their preemptive right within a month from the notification date of their intention to sell the share (its part) or within another term established by the partnership charter or participants arrangement, the participant's share (part thereof) may be alienated to a third side [4].

This state of the law indirectly disclose the primary right of the corporate rights owner to receive information about the participant intentions to dispose its share, its value and the timing of these actions. In case of participant share (its part) acquiring at limited liability company, it is obliged to sell it to other participants or third parties within a one year term, or to reduce its authorized capital in accordance with the legislation requirements. During this period, the profits distribution, as well as the voting and quorum determination in the supreme body, are carried out without taking into account the acquired share.

In addition, a special group of information rights arises at the company members as an change wave within the company authorized capital size by it increasing or decreasing, because shareholders have the preferential right to purchase shares that are additionally placed and the right to buy shares of the company if the shareholder voted against the increase or decrease within the authorized capital [5].

In this case, the member of the partnership has a right to obtain information about the reasons for making such a decision, the procedure and procedure timing, the legal consequences for a particular partnership participant above mentioned events. It should be noted that as opposed to information legal opportunities regarding access to information about organization the owner assumes the responsibility not to disclose the information about his rights realization which is commercial secret and / or confidential information.

In considering these issues, the peculiarities of information aspects within the corporate rights management were investigated with attention to agreements between shareholders in terms of realizing their interests.

As a result of the research, the following features of the agreement between the company's shareholders are highlighted as a form of their interaction and realization of their corporate rights and interests:



First, it is an agreement between stockholders, based on the voluntariness principles, equality, agreement on the interaction essential factors. It follows that no shareholder can be compelled to coordinate his actions by concluding such an agreement. Also, all shareholders participating in such an agreement are equal in their rights and obligations. In addition, the agreement is reached on such implementation aspects of corporate rights and interests of each agreement parties, which may have significant consequences for the entire company as a whole.

Secondly, this is an agreement where its parties can only be a shareholder.

Thirdly, this is an agreement, the subject of which is the sale by shareholders of shares rights and / or refraining from the exercise of those rights. The Law of Ukraine «On Joint Stock Companies» stipulates: «The agreement between shareholders may provide for the parties to vote in the manner prescribed by such agreement, at the shareholders general meeting, agree on the acquisition or alienation of shares at a predefined price and / or in case of occurrence to refrain from alienation of shares to the circumstances occurrence which are specified in the contract, as well as to take other actions related to the management of the company, its suspension or the separation from it of the new partnership»[5]. The subject of such an agreement may not be the party' obligation to vote in accordance with the management bodies instructions, whose shares are entered into this contract, unless the contract party is a person who is simultaneously a member of the such company management. Any other conditions of an agreement between the shareholders that conflict with these requirements can not be taken into account in the corporate management implementation.

Fourthly, this agreement is based on the law norms, the charter and other internal documents of the company. That is, an agreement between shareholders may stipulate conditions or a procedure of determining conditions in which a contract shareholder is entitled/obliged to acquire/sell shares and to determine cases (which may or not depend on the parties actions) when such right or obligation arises. There are some manipulation methods into using agreement by the interested party:

(1) using of the defects within the form and order of the contract conclusion or its falsification. As you know, the agreement between the shareholders has writing form, which records the authenticity of parties signatures, the entry into force date. An agreement on rights of the shares concluded by an agreement party between the shareholders when violation of this agreement happen, it may be declared invalid by the court in the party' suit only if it is proved that the one knew or ought to know about agreement restrictions;

(2) using of the contract information. Unless otherwise provided by law or an agreement between shareholders, information within the agreement content between the shareholders is not subject to disclosure and is confidential;

(3) abuse by obligations default under the contract. Agreement violation between the shareholders can not be the basis for the managment decisions invalidation. In addition, the agreement between the shareholders may provide ways of ensuring

for fulfillment of obligations arising from such an agreement, and civil liability measures for failure or improper performance of such obligations;

The rights of the agreement parties between the shareholders take origins from such agreement, including the right to claim compensation for damage caused by a agreement violation, the penalty imposition (fine), compensation payment (fixed amount or amount to be determined in accordance with the procedure provided for by the shareholders agreement), the application of other liability measures in connection with agreement violation is subject to judicial protection;

(4) abuse of the way and size of the controlling shareholding formation. As you know, a shareholding of more than 10, 25, 50, 75 and 95% can be determined as significant or controlling. A person who, in accordance with the shareholders agreement, has the right to determine the voting version at the shareholders general meeting in accordance with the shares of the company, is obliged to notify the partnership of the acquisition of such a right, if, as a result of such acquisition, this person, either alone or in association with his affiliated person(s) directly or indirectly receives an opportunity to dispose of more than 10, 25, 50 or 75 percent of the votes cast for the company's ordinary shares.

Thus, in corporate management, contractual relations between shareholders are the tool through which possible functional solutions to the enterprise' problems, but it is necessary to take into account the peculiarities of the direct conclusion of shareholders contracts in order to prevent possible abuse of both individual shareholders and the governing bodies of the company. What can negatively affect its effectiveness.

The conducted study made it possible to conclude that the information aspect of corporate management covers all components of the corporate governance mechanism functioning and is intended to provide the owner with the necessary opportunities for more effective management and control over the company' economic activities in which he has corporate rights and thus acts as an effective protection mechanism and legitimate interests of their owners.

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## **HARMONIZATION OF MARKETING MANAGEMENT IN PROVIDING OF THE ORGANIC PRODUCTION DEVELOPMENT**

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Over the years, there is a sharp increase of the negative impact of society economic activity on the state of environment. Particularly relevant issue of rational and sustainable use of natural resources is presented in the agricultural sector, which is the most sensitive contact zone in the system of mutual economic and environmental interests of humanity. For many years the destructive effect on the environment increased in agriculture. This necessitated fundamentally new vision capabilities ensuring the environmental and economic balance in the agribusiness.

Problems in the field of agriculture and improvement of its competitiveness can be addressed through effective strategies and mechanisms for innovation. Such innovation strategy, in our opinion, should be the ecologization marketing strategy of agriculture that ensures high quality of life, national security, environmental protection and high technical level of agricultural production in Ukraine.

This marketing strategy is capable of ensuring principle of unity for economic and ecological processes in the management of agricultural production and promote radical restructuring of the relationship of the production process from the environment.

Works of local researchers Reshetnikova [12], Kudenko [6] and others are devoted to the issue of developing marketing strategies for transformational period.

Research of Prokopenko [11], Hromushyna [3], Shkuratov [14], Melnyk and Egorova [7], Kalinichenko, Havrysh and Perebyynis [5] and other scientists are devoted to the issue of the formation of the economic mechanism of environmental regulation of agricultural production and environmental protection.

Economic approaches to improve the mechanism of production and consumption of environmentally friendly products are also considered in the works of Patyka et al. [10], Mishenin and Yarova [9] and others.

Despite the potential of natural resources, favorable climatic conditions, as a result of certain socio-political and environmental factors there is the decrease in agricultural production and a significant deterioration of its quality [3].

Ecological and economic crisis in the agricultural sector, in our opinion, can be caused by the following problems:

- degradation, pollution and land exhaustion;
- loss of natural and assimilative capacity of natural resource potential of agricultural production;
- imperfection of agricultural products standardization;
- imbalance between the production process and the environment;
- lack of government regulation, regulatory and legislative framework of ecological and economic relations entities;
- non-compliance with modern requirements and technical base for the development of new technologies for the production of agricultural crops;
- lack of understanding in society priorities of environmental preservation and sustainable development benefits.

In recent years the market environment with operating economic actors is changing significantly: growing its degree of uncertainty, there are unmeasured risk factors [1].

Marketing in the agricultural sector and the development of environmentally oriented marketing meet the requirements of social responsibility agricultural production, development of economic management mechanism on environmental and economic grounds, and is an integral part of environmental and ecosystem management in the agriculture [15].

In our opinion, adaptation of marketing processes based on environmental requirements is essential for the effective implementation of marketing in agriculture. Thus it is not just a one-time use innovation to achieve instant benefits but the continuous, detailed planned strategic innovative development, which is based on methods of ecological and economic management. Just through environmentally oriented marketing strategy the contradiction between the economic interests of producers and preservation of the environment, that is ensuring of environmentally safe life conditions, can be solved [4].

*Table 1*

**Factors of positive and negative motivation for agricultural enterprises to adopt environmental marketing strategies  
[Autor's study]**

<b>Factors of positive motivation</b>	<b>Factors of negative motivation</b>
Cost savings due to conservation of resources	Imperfect legislation concerning to rules and regulations for production of "clean" products
Reduced costs for risks of environmental charges	Lack of clearly defined development strategy with appropriate information and legal support
Improved natural resource and market potential.	Lack of state support for producers of ecologically safe products and control system links all product life cycle
Improving the overall image of the company	Lack of economic instruments to encourage the production of ecologically clean products
High competitiveness of environmentally safe products	Risks of crop losses and lack of Compensation associated with the production of ecologically clean products
The emergence of new environmental needs (need for environmental safety), environmental interests and culture of the population	Speculative price premium processing enterprises and traders, because of which agricultural producers of organic products loses a significant amount of money as a result of its implementation, and the bulk of the profits remain in the sector of processing and trade

The emergence of environmental marketing is the result of increasing consumer demands for quality and environmentally cleanliness of the products they buy, its impact on human health and environment [9].

With forming of ecologization strategies for agriculture production we propose use of the key strategic categories: mission statement, goals and objectives; strategic analysis of macro and micro factors; choice of priority strategic directions, forming tools for the implementation of this strategy; assessment and monitoring its implementation.

The process of developing a ecologization marketing strategy should be began with identification of key industry issues: economic, political, social, technological and environmental, which need strategic analysis. Formation of the mission and goals has to be made only after a detailed analysis of strategic problems occurring

in the industry and its external surroundings.

The main purpose of environmental marketing at national and regional levels is to create conditions for economic entities in which they are interested in maintaining and restored natural resources while implementing innovative approaches in their work [8].

We have attempted to summarize the positive and negative factors motivating agricultural producers regarding the use of environmental marketing (Tab. 1).

At the entity level environmental marketing main goal is to develop economic organization and economic mechanism of agricultural enterprise using its main components: planning, promotion (motivation), organization management, control and so on. It is necessary to orient production to meet the environmental needs of consumers [7].

*Table 2*

**Criteria for effective state regulation of agricultural production**  
**[Autor's study based on 16]**

<b>Types of criteria of state regulation</b>	<b>Essence and efficiency features</b>
Self-sufficiency of food	Self-sufficiency ratio is defined as the ratio of total volume of domestic food production to the volume of its domestic consumption. To support sovereignty state is to reduce dependence on imported food, especially for those products that can be produced on its territory
Trends related to population income	Criterion takes into account the trend of slowdown in revenue growth of agricultural enterprises in relation to other economic sectors. It is one of the criteria for support of agricultural production of the state. State regulation is intended to support the current level of prices.
Development of the social sphere	Recognizes the trend of decline in the share of the agricultural sector in national economies of the developed countries and Ukraine in particular. This is reflected in the disappearance of entire rural landscapes. It is one of the criteria which points to the need of state support for Ukrainian village, because it allows to keep rural way of life.
Environmental criteria	The most important criterion for state intervention in the development of agricultural production. Factors of negative effects are becoming increasingly visible environmental degradation indexes. Negative externalities should be regulated by the state.

The objective of environmental marketing for agricultural producers is assistance to reducing the burden on the environment in the planning, coordination and control of all management operations.

We believe a significant role in the elimination of negative factors in the market belongs to the state.

The effectiveness of state regulation of agriculture in the market depends on the

criteria that were formed for a long time and that can be divided by priority (Tab. 2).

Component part of formation of ecologization marketing strategy is analysis of macro- and micro-surroundings, analytical assessment of its parameters and adjustment of marketing strategy in accordance with the dynamic changes in the environment [6].

From the above information be noted that there is quite a lot of negative factors motivating agricultural producers of ecologically clean products, the main of which is the inefficient functioning of the market of environmentally safe products and its slow development in Ukraine [2].

Economic management methods in the ecologization of nature management should include the creation of economic conditions that would encourage land users to achieve better results in their work.

The state should perform important functions to stimulate agricultural growth, social protection, rise of quality of life. This priority role of state regulation of agriculture in any case does not reduce the importance of market self-regulation. Mechanisms of state actions should focus on supporting private initiatives aimed at the development of new technologies, stimulate innovative activity in rural areas [14].

Economic instruments include promotional leverage, the use of preferential taxation and credit, and price incentives of environmental activities.

Environmental management tool provides certification and labeling of ecological products, which prove that they comply with the identified facility specific regulations. The process of certification and standardization should be conducted according to international standards, adapted to the conditions of Ukraine [13].

Ecological and economic tools, in our opinion, are the part of an environmental marketing and include:

- production of ecologically safe agro products and its environmental positioning;
- pricing taking into account environmental costs;
- development of ecologically safe products market, which is based on international standards for ecological agricultural production;
- distribution of ecologically safe food products;
- establishment of Information and Communication promoting agrarian food products.

Formation of strategy of environmental marketing in the agricultural sector, in our opinion, is the integration of all administrative functions that also contribute to the ecologization of agricultural production, allocation, planning and forecasting of business initiatives for investment basis, which is linked to production, formation and stimulate demand for ecosafety agro products, and agricultural products and ecosystem services.

Environmental marketing involves environmental awareness; formation of environmental needs, social responsibility, marketing strategy, marketing management, environmentally focused market research, environmental and

economic tools of marketing management in manufacturing environmentally safe agricultural products (product, price, distribution, promotion system).

*Table 3*

**Economic management methods of agricultural production**  
**[Author's study based on 3]**

<b>Economic incentives</b>	<b>Economic sanctions</b>
Providing favorable short- and long-term loans to implement projects of ecologically safe and economically effective technologies	introduction of compensation for losses related to the impact on the environment
Partial or complete exemption from income tax in the case of funds for the purchase of ecologically safe fixed assets	Increase and differentiation of the range of payment systems for the irrational nature management, above-limit usage of natural resources, and environmental pollution to uneconomical levels for the agricultural entities
Preferential taxation and crediting for agricultural enterprises producing ecologically safe products and environmentally friendly production	differentiation of the land tax depending on its quality of locality
Encouraging employees of enterprises producing ecologically clean products and compliance with environmental legislation (soil fertility, quality standards of production, improvement of environmental parameters)	Comparison of the factors of positive (gain on disposal of waste benefits tax credit benefits, price increments) and negative motivation (payment for excessive use of natural resources, fees for excess pollution, waste disposal fees, fines, additional tax) expressed in environmental costs
Development of the possible variants for refund of damages related to crop shortfalls in the production of ecologically safe products	

Combination of environmental, economic instruments at state regulation of environmental and economic components is important in implementing of the ecologization marketing strategy for agricultural production.

Implementation of environmental marketing in practice will help to identify new market niches, empower diversification of agricultural enterprises. The production of environmentally friendly and safe products can generate additional revenue, because these products are of higher quality. Environmental marketing can act as an effective instrument for economic development mechanism and to be the basis for environmental security of the national economy.

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# **ORGANIZATIONAL AND ECONOMIC MECHANISM OF MANAGEMENT OF THE NATIONAL ECONOMY COMPETITIVENESS**

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In the context of global crisis phenomena, the problem of the formation of sustainable competitiveness has acquired a particular urgency due to increased variability of the external environment and insufficient scientific and methodological development of many aspects of the formation and implementation of competitive advantages of the national economy.

The growing competition in the world markets and the unstable financial and economic situation of the global environment lead to the fact that governments are compelled to look for ways of the country's stable economic development by using the existing competitive advantages, as well as to develop and implement certain measures and mechanisms for attracting investments and technologies to modernize production processes and to produce more competitive products.

In recent years, competitiveness has become a leading management concept. On the basis of international openness of the national economies and globalization of economic relations, not only developed countries, but also those countries that are developing rapidly, declare competitiveness as one of the main tasks of their economic policy.

The urgency of solving the problem of managing the national economy is obvious, since its various aspects are reflected in the studies of international organizations [1, 2, 5, 10] and the scientific works of scientists and researchers, in particular: [3, 4, 6, 7, 8, 9] and others. However, the model of the government management of the national economy, which was created in the transformation period and based on the key role of the central authorities in solving economic development issues, does not correspond to modern trends.

At the same time, modern economic science does not sufficiently address the issues of the formation of the adaptive mechanisms for managing competitiveness, both at the national level and at the international level of socioeconomic relations.

All this has made it necessary to determine the components of the organizational and economic mechanism for managing the national economy competitiveness.

The national economy competitiveness is considered to be a multifaceted economic category that was formed in the process of economic thought development. It is believed that for the first time the concept of the economy competitiveness was introduced in 1990 by M. Porter, Professor at Harvard Business School, who has defined the need to consider the above-mentioned concept not only at the enterprise level, but also at the level of the country as an object of research [2].

Gradually, the scientific community formed a broader approach to the notion of the national economy competitiveness. According to the most common interpretations of the new approach to its understanding, the national economy competitiveness should be described as "... something more than the competitiveness of the enterprises, since their successful or unsuccessful strategy depends not only on their efforts, but also on the structural characteristics of the national economy" [9, p. 242]. In this study, the term "structural competitiveness of the country" was first introduced. In general, this term refers to a set of factors characterizing the development and effectiveness of its structures, as well as the external factors for enterprises. Since that time, the country's competitiveness began to be considered as an indicator integrating three basic components: price, technological and structural one.

Further development of the competitiveness category of the national economy was achieved in the early 90s of the 20th century as an important part of the OECD Program, widely known as the "Technology and the economy: the key relationships" [9, p. 157]. According to this program, the technologies used, as well as the existing innovation systems and common institutional and social environment, along with the strategy of an enterprises and the effective use of their human capital are considered to be the key elements of the national competitiveness.

Vdovin S.V. in his scientific work emphasized that the essence of the competitiveness of any subject (enterprise, industry or country) consists of its ability to create and realize the advantages by which it is possible to compete in a certain market, in a certain period of time, while the essence of the competitiveness of an object is the aggregate of its advantages over the other objects [8].

A review of the recent scientific literature showed that most studies consider the essence of the national economy competitiveness can be defined in several ways, which are as follows:

- the achieved positions of the state or commodity producer in the domestic and foreign markets, respectively, caused by economic, social and political factors. In the conditions of an open economy, this concept includes the ability of a country or an enterprise to resist international competition in its own market, as well as in the third-country markets [4];

- the ability of the economy in a free competition to produce goods and services that meet the requirements of the world market, the implementation of which not only increases the welfare of the country and its individual citizens as a whole, but also increases the socio-economic optimality that is reflected in a high social effect [7];

- a characteristic that determines the country's stable position in the domestic market, due to various economic, socio-demographic, political, environmental factors, as well as the ability to overcome barriers to entering the external market and the ability to compete [3];

- the country's ability to create legal, infrastructural, scientific, financial and,

in general, the whole range of institutional conditions that allow the economy to develop rapidly by using innovative technologies at all possible levels, and on this foundation to create conditions for increasing the well-being of citizens and improving social and economic performance that is reflected in a high social effect. All this indicates that the country's competitiveness is its ability to provide sustainable economic growth and a high social orientation of the national economy [10].

The modern formulation of the definition, provided by an International Forum for Management Development, defines competitiveness as a sphere of economic knowledge that analyzes facts and policies, shapes the nation's ability to create and maintain an environment that can ensure the creation of growing value in its enterprises and the prosperity of its people.

Consequently, representatives of an International Forum for Management Development have identified four factors of competitiveness, which can be used to determine the general state of the national competitive environment. These are as follows:

1. The economic performance. This factor measures the macroeconomic development of the national economy, foreign trade, international investment, employment and the level of prices in the country.

2. The government efficiency. The given factor is based on assessing the state of public finance, tax policy, institutional framework, legislation and education, determines how the government policy contributes to the growth of the national economy competitiveness.

3. The business efficiency. This factor reflects the level achieved by the enterprise in the field of innovation, profitability and reliability, which is estimated from the data of labor productivity, the labor market, and the state of finance, management practices and the impact of globalization.

4. The infrastructure. The given factor determines to what extent the needs of the business entities are met by the available resources, technology and science. For this purpose, it is advisable to consider the level of the development of the basic, technological and scientific infrastructure, the health status of the population and the state of the environment, as well as the system of national values [5].

Today, in the most general aspect, the country's national competitiveness is defined as the aggregate of economic, scientific, technical, production, organizational, managerial, marketing and other opportunities realized in goods and services that successfully compete with foreign goods and services both on the domestic and foreign markets.

On the basis of the above-mentioned definitions of the essence of the national economy competitiveness, a number of essential characteristics of this concept have been singled out.

First of all, the national economy competitiveness is an objective process that reflects the continuity and dynamism of the national economic system development.

Consequently, competitiveness requires constant monitoring and maintenance of a certain level of development and implementation of corrective actions within the framework of the state policy.

Secondly, the national economy competitiveness directly depends on the level of competitiveness of the domestic enterprises and the products they produce, which are distributed both on the international and national markets. In addition, the efficiency of production, distribution and sale of goods includes both the ability of economic institutions to create favorable conditions for competitiveness, and the ability of organizations and industries to use such conditions to create and retain certain competitive advantages.

Thirdly, the international competitiveness of the economy as an integral part of the national economic policy is viewed as a central problem and an essential tool for raising living standards and improving public welfare. Ultimately, the goal of the population of the international competitiveness for residents of the country is a high level of social development and sustained economic growth in the long run, support for the socio-political and legal stability of society.

And, finally, modern concepts and strategies for increasing the competitiveness of the national economy are formed on the basis of the country's innovative capacity, the development of its scientific and technological potential, and the productivity of the resource use. At the same time, the country is able to increase (or maintain) its market share by product categories that determine its international specialization, as well as to form new niches in the world market of high-tech products.

The competitiveness of the economy is influenced by four groups of factors:

- economic performance;
- government efficiency;
- business efficiency;
- and infrastructure (See Figure 1).

Nowadays many countries manage their own economies according to the “fundamental forces”, which are the four measures that determine the level of the national economy competitiveness.

Mostly they are the result of traditions, history or the current situation in the system of values of a society and originate in the “mode of action” of the country. The proposed theory describes the relationship between the four “forces” of the competitiveness in terms of the systems approach.

This concept pursues the goal of determining the profile of competitiveness that characterizes the national economy. Therefore, in the case of ensuring a favorable combination of all the components, the stability of enterprises and the state as a whole can be achieved. Sustainability is an important criterion of the competitiveness. In addition, the state of the competitiveness is directly affected by the value-added creation, under the influence of which it is possible to achieve a higher level of welfare of society.

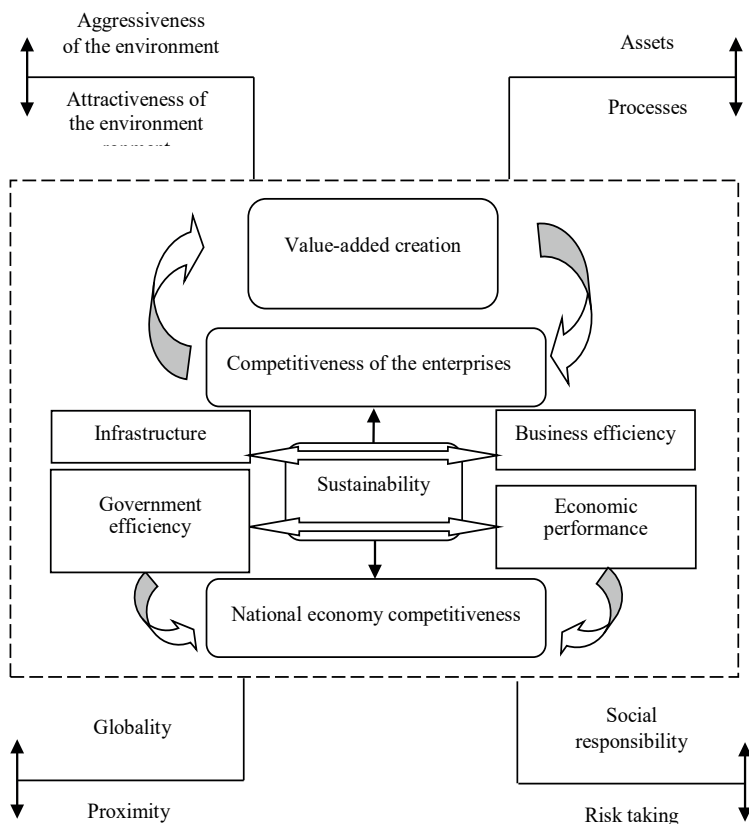


Fig. 1. The competitiveness “cube” of the International Institute for Management Development [developed by author on the basis of the sources: 1, 2, 5]

In this regard, the “cube” of competitiveness, proposed by the experts of the International Institute for Management Development, consists of additional parameters of the external environment, regarding to the next ones: attractiveness and aggressiveness of the environment; globality and proximity; assets and processes; risk taking and social responsibility.

The interdependence of the processes of competitiveness and economic growth of the country, as well as the complexity and depth of the necessary economic transformations in accordance with the trend of globalization, determine the need for organizational and economic components, factors and conditions for ensuring the national economy competitiveness. Taking into account the generalization of these approaches and the concepts of managing the competitiveness of the national economy, a conceptual model of the organizational and economic mechanism for

managing the competitiveness of the national economy is proposed (See Figure 2).

The theoretical and practical significance of the research is that the proposed conceptual model of the organizational and economic mechanism of management of the national economy competitiveness makes it possible to raise the level of the competitiveness and succeed in market competition.

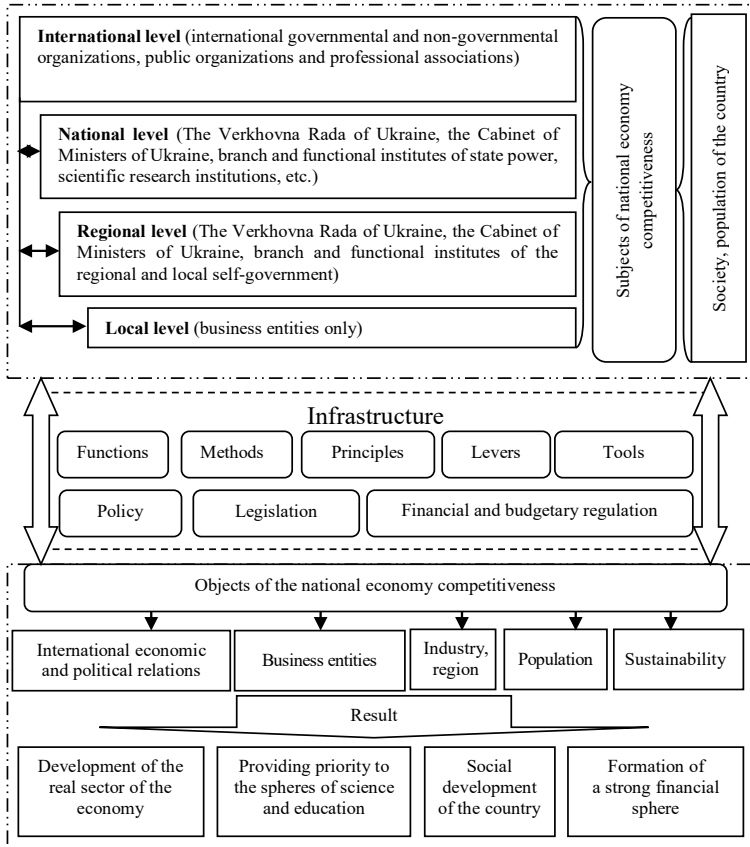


Fig. 2. The conceptual model of the organizational and economic mechanism of management of the national economy competitiveness [developed by author]

A promising direction for further research will be related to the determination of specific features of the implementation of the components of the proposed mechanism in the process of ensuring the national economy competitiveness.

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## **PART 2. MANAGEMENT OF MODERN SOCIO-ECONOMIC SYSTEMS: A SECTORAL AND REGIONAL APPROACH**

### **COMPLEX MECHANISM DEVELOPMENT OF ORGANIZATION DESIGN**

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Formulation of the problem. The rapid pace of economic processes in the business world forces the necessity to optimize the business processes of socio-economic systems. In fact, applying the change management methods and the capabilities of modern information technology can accomplish major improvements.

Analysis of recent research. The late twentieth century studies showed that one of the most effective sources of increasing labor productivity is the enterprise restructuring. This was confirmed in the publication in 1993 of a monograph by M. Hammer and J. Champi, where the essence of BPR (Business process Reengineering) was disclosed [17].

This business optimization approach was enhanced by our Ukrainian researchers: Vinogradova OV. [1] Milner BZ [3], Novikov MV [4], Filinov EN, Boychenko AV [14] and others.

Unsolved Problems. Scientists have described and developed many implementation problems and using business modeling in socio-economic systems, but the problem of creating a comprehensive mechanism for organizational design has not been thoroughly investigated.

Purpose of the study. The main aim of the study is to enhance the idea of increasing the competitiveness of the business entity by developing a comprehensive mechanism for organizational design.

Main results of the study. Corporate reorganization is certainly in vogue. In the survey conducted by The Boston Consulting Group, almost 80% of respondent companies reported under-going a recent reorganization of large-scale enterprise-

wide reorganization initiative [18].

Practical activity on management and optimization of business processes is implemented with the help of technology of business-reengineering, which performs in the following stages [6,5, 10,11,13,15]: creation (design) of future business processes, diagnostics of business management processes, change (adaptation) of business processes, optimization of business processes, documentation of business processes. Now we will consider the following stages in more detail.

1. Development (design) of business processes. For this intent, we will need to apply a special language for describing business processes. In fact, it will provide opportunities to describe the current state of business processes, as well as develop future models. First of all, the participants in the process will fulfill their functional responsibilities within the frames of this model. Second of all, each employee clearly knows all his/her actions in all the processes in which he/she is involved [6]. In fact, when describing business processes, as a rule, the method of SPA (Structured Process Analysis) [8] is applied. The SPA method does not discard the possibility of using various schemes of algorithms for describing the process, instead, it replaces them at the highest level of detail when developing a complex process map; providing to scale processes to the necessary level for business process reengineering. [1]. As the description has a multi-level structure (first the process is described at the macro-level, ie at the enterprise level, and then proceeds to the description of the lower level with a higher degree of detail), this ensures systemic and structural interconnection. The actions of all units and employees performing their duties in accordance within this model should be streamlined, coordinated and channeled into the mainstream to achieve a system-wide result [6]. Systemic implementation of the creation of business processes requires the coordinated efforts of all subjects of government, which is confirmed by the words of the American researcher M. Mesarovic [2]: «The system needs to be designed as a whole, rather than starting with the process and then only adding the necessary control. Examples can be provided such that the design of the process technology considers the presence of control subsystems, however, the system-wide approach without separation is still not implemented.»

In order to manage processes as a system, it is pertinent to form a process structure, that is, to build them in a certain and interrelated order. Since each process is designed to produce a result that is used to produce the next result at further stages and higher levels, this structure should ultimately achieve the overall company's objectives. Then the process improvement becomes the most effective way to achieve the goals [6].

At the same time, few people today understand the relevance and necessity of maintaining the integrity of the built-up facility and activities. The second factor which hinders the achievement of high performance of the analyst of business management processes is the multi-purpose direction and activities of the head. As a result, there is an impression of lack of «professional» integrity, both in the

understanding of the analyst and the leader [3].

First of all, there is a connection with the standards that are used to describe the business management processes in order to link the schemes of the current operating activity with the activities of managers, analysts, etc. Second of all, the organization is described as a set of structural units and positions but not as a single «organism», on which the possibility of applying the process approach is based. As a result, the incorrect formulation of the described problem and the inefficient use of the models themselves occurs. In the best scenario, the modeling of manager's activities is limited to one function with many inputs and outputs, which does not solve in overcoming the challenge of achieving integrity [4].

The development (design) of business processes involves the following actions: the development of the image of the future organization and the development of the business model of the new organization [16].

- The development prospective organization image should be implemented using an integrated approach based on a combination of strategy development processes and business requirements. These activities of the first stage include the specification of the main objectives of the organization, based on its strategy, customer needs, the general level of business in the industry and the current state of the organization. The main intent of this stage is to develop a view of the new organization and formulate it in terms of the specification of the organization's goals [18].

- Recently, a four-stage method for developing a model of redesigned processes or for developing a «new» organization has been widely used. These are the following four stages [18]:

1. Developing an external model of the future organization.
2. Developing an internal model of the future organization.
3. Designing an information system to support future business processes.
4. Testing the redesigned business process on a small scale prior to implementation.

Modeling and simulating of the processes carried out with the obligatory use of any modeling language. The modeling language should express how the internal or external process is turned to reality with the help of human or technical resources, and what functions these resources will require. It is especially pertinent to portray how the process can be supported by the information system [18]. In principle, the information technology is now a powerful «locomotive» of change, which sets in motion all other parts of the organization. As with the change of the business environment, the company not only faces new operational issues but also new strategic development tasks whose solution requires new information: new one reflecting not only the state but also on the structure of the business system itself. Information systems reflect the recent technical achievements, as well as experience and knowledge in the management's subject areas. The information system unites all the company's departments providing automation of many functions for the collection and processing of information [4]. In fact, the primary conditions that must be presented to the new information system are flexibility and

ease of modification, which permit the tracking changes in business [1]. In addition, according to [7,8,10,11, 14,19,16] and with the help of information technologies it is possible to achieve various categories of changes that welcome improvement not only of the temporal characteristics of processes but also the reorganization of the sequence of steps in performing operations in business processes and separate precedents. Furthermore, the information systems will provide unification and to speed up the process of diagnosing the business processes.

2. Diagnostics of business management processes. The process model (available or anticipated), thanks to the clarity of the description enables the effective analysis of how it optimally leads to the goal. Due to the analyzed factors, the logistics of the process, its duration and cost (including their distribution by stages), and others, on which the effectiveness of performance can depend and act on. The analysis data allows to change the process, constantly enhancing its quality [6].

Quantitative indicators of the processes demonstrate the effectiveness of their management in a certain stage of the organization's development. In fact, resources are managed by the processes and they also transform resources into finished products, which you can quantify the effectiveness of process control. The quantitative indicators of the process management are: the complexity of processes, cause and effect relationships between processes, process controllability, process costs, and the degree of process controllability [18].

The analysis of business processes is implemented with the purpose of development of offers on elimination of problematic zones in processes of the organization. In order to achieve this, a «snapshot» of the technology of process execution is made-a model of business processes «as is» is built, which allows the customer to get a comprehensive view of what is happening in the company. During the analysis of the model, the current problems of business processes are revealed: double subordination, duplication of functions, absence of information link between processes, and processes' inconsistency. Suggestions are made for the future direction of changes (adaptation) of business processes based on the results of the analysis.

3. Change (adaptation) of business processes. Any changes of business conditions such as the emergence of a new line of business, the expansion of the range, changes in the supply chain technology require an immediate transformation of the affected business processes. The existing model is then adjusted, the changes are communicated to the executors, and they begin to perform functions with respect to the new conditions. Constant adaptation of business processes to changing conditions is business management's effective mechanism [6].

Implementation of changes is the most challenging and critical phase of reengineering. For instance, in order to minimize the risks associated primarily with the resistance of the internal environment a very thorough detailed and consistent work with the personnel is implemented. In addition, all the employees of all levels are involved in the process of changes and are motivated to achieve the set result

of an optimally working and flexible company. For this purpose, it is necessary to screen the employees for compliance with new job descriptions; determine the need and quality of qualified personnel and to adapt employees to new job responsibilities and to check the correctness of employees' compliance with all the new working rules.

The result of this stage is not only the direct implementation of all changes, but also the rigorous training of the company employees in a new style of work; more dynamic, result-oriented, and therefore competent and competitive.

The company then transitions to a qualitatively new level working organization. The main result these introduced changes is that the company itself is pawned by the mechanism of reengineering; continuous changes and adaptability to environmental conditions. The organization gains an additional competitive advantage in the market and the opportunity to optimize the business processes with the aim of developing a new business model.

4. Optimization of business processes. In order to determine the reserves to improve the efficiency of the organization and optimize business processes, monitoring and analysis of business processes must be implemented. First of all, this allows the elimination of the following factors: duplication of functions, «bottlenecks», excessive cost and the presence of surplus operations, as well as their poor quality of implementation, inconsistency of actions of participants, etc. Optimization consists of two types: continuous improvement of processes (evolutionary path) and periodic radical change (revolutionary path). The first method is used in the framework of current activities when the enterprise does not require drastic changes. The second method is used when changes are necessary in connection with a significant change in the order of activities. For example, implementation of the complex automation. In all such cases, the task is to «start everything from scratch». This approach prevents the application of new technologies to old and previous processes [6].

Furthermore, there is a necessity to fix the existing business processes in order to assess their effectiveness. If this is not currently done, the future significant costs are possible due to inefficient work of employees, breach of contractual obligations, the need for restructuring, etc. This entails both serious financial costs and the decline of the company's image [9].

In order to see the activities' bottlenecks and to effectively manage the company, it is essential to link the implementation of certain processes and works with its target strategic indicators. In addition, to effectively implement this, we must compare the strategic goals and objectives of the company with the inputs and outputs of the processes. The dependence of the results of the company's activities on the results of the process is revealed. The indicators for which management will be selected are selected will strongly depend on these indicators. As a result, the organization's activities at all levels are aimed at achieving these results and the company's owners and managers get an objective mechanism for assessing the results of their activities

and the organization's activities.

Based on further results of the analysis of business processes, the model «as is» is amended that forms a model of processes «as it should be» as follows:

- Proposal for the optimization of the business processes are developed in detail (functions are redistributed among the participants in the process, duplication of functions is eliminated, information gaps between the blocks are eliminated, the system of document circulation between the structural units participating in each process is optimized).

- The cooperation with the employees of the company-customer, schemes of information flows on optimized business processes are developed, a list of information entering and proceeding from the structural units is drawn up: the type of the outgoing document, the addressee, the officials responsible for execution and approving the document, the terms of submission.

- The regulating scheme of documents movement, development (optimization) of the regulation on document circulation (regulations) for the main blocks of each business process, indicating the participants (including responsible), and the timing and forms of information transmitted within each business process.

- Suggested recommendations for optimizing the organizational structure of the customer company considering an optimized management system (optimized business processes).

The optimization results are business process models «as it should be», considering their optimization and a package of updated (newly developed) internal regulatory documentations (regulations on departments, job descriptions, process execution rules).

5. Documenting Business Processing. All the management's actions and changes of business processes must be documented. Business process models are designed in the form of descriptions, representing diagrams on paper and electronic media. This resembles a complex repository of business processes of the enterprise. Any changes are necessarily reflected in the models so the company can perpetually maintain the current version of the entire set of business processes. Similarly, you can plan future processes and save them as versions that are analyzed, checked and debugged, and only then become workers [6].

Organizational change planning involves analytical and forecasting activities, the development of possible measures and the selection of an appropriate strategy. At the same time, various levels of intervention in the old structure (individual, group, division, organization as a whole), as well as numerous organizational parameters, in particular the following [17] should be considered:

- Structure and processes (recently more and more often in the direction of «smoothing» the hierarchy and strict orientation in the process of creating benefits in «horizontal organizations»).

- Production and information technology (for instance, minimized production of resources).

- Organizational culture as a model of the fundamental values and principles shared by the members of the organization (radical change is extremely difficult).
- Human resources. For instance, by selection, development of personnel, incentive systems and motivational (with «transformation» of behavior and attitudes) of personnel management.

It is of paramount importance to distinguish the differences between the partial and radical changes. The first ones are based on the existing value systems, structures and processes. In the course of partial transformations, the practical suitability of the project dominates and not in the unconditional achievement of an ideal (conceptual) state. Radical changes are urgently needed due to the rapid development of the surrounding market environment after a long phase of stability and a long-term disregard for the necessary adaptation steps. Such a «revolutionary» process of change to achieve advantages in the relation to competitors may be desirable strategically and to encounter the strong resistance from the staff [17].

Consequently, reengineering should be referred to as an applied method to the special periods of the organization's development, especially when it becomes necessary to make a qualitative change in the organization in a radical way and with a sudden jump in a new state that was not present until this current moment of the development.

The necessity to adjust the management system are due to [12]:

1) The feedback, i.e. the impact of the results of the operation of the control object (in particular, the discrepancy between the normative and actual parameters of the object).

2) The necessity to review the goals, methods and processes implemented by the management system.

3) The software development and the technological tools and the progressive management methods.

**Conclusions and prospects for further development.** Therefore, we have seen that the reengineering approach allows to transfer management of the organization from the functional principle to the principles of the process organization. This in fact is inherent in the process control structure and process teams focused on the tasks of a particular business process. Furthermore, this approach is focused on the growth of investment activity and creates prerequisites for the growth of innovative activity. Moreover, the process orientation determines the peculiarity of reengineering: creation of new technologies, technical means of production and as a result encourages the development of innovations and technological progress.

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## **THE DIRECTION OF OPTIMAL RESOURCE PROVISION OF REGIONAL DEVELOPMENT**

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It is a well-known fact that each region of Ukraine has a diverse resource potential and the problem of regional competitive advantage formation on this basis is widespread. The optimal resource provision not only influences the sustainable development of the region and effectiveness of the economic development of certain socio-production systems but also has a certain impact on the level of human development, health, living standards, the overall outlook of environmental and socio-economic development and institutional components of its support. It should be recognized that in contrast to the contemporary problems of the regions it is advisable to create a proper management system, focused on the most effective use of regional resources, especially in the planning period, which could provide significant growth of budget revenues of a region, prevent possible risks and expand access to investment resources. This approach updates the objectives of the study regarding the quantity and quality of available resources, their rational use, as well as capacity-building for effective regional development. A comprehensive solution of the regional problems of optimal resource provision requires the determination of top priorities in the next steps of the decentralized policy of the State, which confirms the topicality of the research.

Basic findings on regional development, including those in the context of limited resource provision are set out in works by A. Amosh, M. Butko, V. Geyts, Y. Gladko B. Danylyshyn, I. Degtyareva, V. Heyets, I. Novak, L. Cherniuk, N. Koretsky, M. Orlaty, T. Pepa, S. Romaniuk, Z. Varnaliy, Y. Zhalilo, Z. Zhyvko et al. However, it is necessary to improve the study of this problem in the conditions of strengthening

of decentralization processes and of limited resources, create long-term competitive advantages and reliable information component regarding the ownership and disposition of available resources. The content of effective mechanisms of formation of the best possible resource provision at the regional level in modern conditions is of immediate interest.

The assessment of the impact and interdependence of resource support from internal and external socio-ecological-economic factors and market conditions in the development of the region, the lack of specialized common regional databases with a broad user access, fragmentation and inconsistency in monitoring processes of the effectiveness of the disposition of resource potential preventing from obtaining reliable information about the availability of resources and timely assessments of their prospects are the issues that require further investigation. A number of issues for resolving the problems of monitoring of resource supplies for socio-economic development of the regions, proportional and optimal redistribution of financial resources through the state budget, effective use of means of the Fund of regional development have not been studied yet.

The aim of the research is a scientific justification and the identification of priority actions to build the foundation of optimal resource provision of regional development in a decentralized policy.

It is well known that one of the main tasks of regional policy is the rational use of all available on-site resources that is the source shaping of the region's ability to develop and is aimed at meeting the needs of the population in relationship to socio-ecological-economic and management factors. However, the region's competitiveness is largely dependent on resource provision, necessitating a strict control and timely diagnosis of problems related to irrational use of resources, their depletion or threats in the external environment influencing their operation.

Miroshnoikova, Pavlova and Zhyvko [1; 2] consider that since the resource support of the socio-economic development of the region includes all existing on-site resources such as material (natural, infrastructural, human, financial-economic, agricultural, industrial, social) and intangible ones (intellectual, informational, organizational management, education and research), it is evident that the development of the mechanisms contributing to the further preservation and enhancement of the regional resource base with further management effects about the maximum result of their use is urgent.

The success of transformational economy of the modern period is directly dependent on the mobilization of existing and potential resources of a society, the regional level included. It is legitimate to explore the resource potential of a region in the overall system of socio-economic development of a region. The key unit in the system of formation of effective resource support of a region is the adoption of management decisions and selection of an optimal course of action from two or more alternatives. The selection process is based on the solution of specific problems of the formation, use and reproduction of the resource potential of a

region to achieve goals in sustainable operation and development of the region. It is also expedient to take into account the basic conditions referred to the state powers, granted subventions, taxes and expenses that will allow to generate and to properly assess the resource potential of a region [3]. In its turn, the organizational conditions coordinate and efficiently organize the use of resource potential of a region.

Resources control system is based on the principles of comprehensiveness, consistency, continuity. These principles help formulate more meaningful and comparative methods for the assessment of resource provision, and optimize the system of formation of effective resource support of a region.

The interconnection of socio-economic process with the resource providing a region helps expand possibilities of the management based on the system approach with respect to integrity. Different types of resources in the region can be the elements of the a socio-economic process, which together can enter into the resource potential of a region, or there may be certain factors for the development of the resource potential, as for example, intangible resources are the most dynamic at present.

A set of indicators reflecting the effectiveness of the management of a regional resource potential should be based on the criteria that can fully use the system of economic levers and incentives. To improve the validity of indicators on the basis of the criteria of the results evaluation (achieved value of the indicator) grounded on the use of indicators of a resource potential of a region (standard capacity). It is advisable to incorporate the following in the complex of indicators reflecting management efficiency of the resource potential in a region: the utilization of the resource potential of a region; the indicator of assessment of the level of under-utilization of the potential possibilities of the economic system; the utilization factor of the active part of the regional resource potential, which takes into account the cost of technology and innovation; the ratio of involvement of resource potential of a region; the predictive indicator of the economic system efficiency taking into account the coefficient of the cost recovery on use of natural resources [4].

A system of methods that will stimulate economic development must be based on the use of a new principle: the combination of assessing of the achievement use level of the total resource potential and the responsibilities of execution of major socio-economic indicators, reinforcing a balanced development of the region in the future. Such a construction of a system of economic incentives, when incentives are subordinated to the main benchmarks, and the assessment of the socio-economic functioning of the region is determined depending on the level of economic opportunities, promotes an optimal balance of approaches to the economic regulation and effective management.

There is a general system of the resource management of the socio-economic development of a region, whose aim is the organization of an effective mechanism of available resources application in the region with the vector of future development and ensuring budget revenues of the region. The appropriate economic assessment,

the administrative-territorial structure, conditions of placing of productive forces and the specialization of the region must be the basic element of the mechanism. While forming the effective system of regional governance, the resources, that are in close current regional use and possession, are involved in the regional exchange and satisfy socio-economic needs as well as resources that can be included in the regional management system (possible and potential) must be taken into account.

The stage of determining the needs of the resource, examination of the potential, necessity and possibility of its development; the preparation and use of the resource; the step of evaluating the economic efficiency of resource use are of primary importance [5]. Regarding a strategic regional development, when the most important management decisions are developed and made, the management mechanism of advanced resource provision with the reference to the priorities of socio-economic development of a particular region requires a substantive and constructive study and practice.

The value of prospective resources should be determined not only taking into account the development needs of production, but also considering environmental constraints. We are talking primarily about the impossibility of the use of resources, if this causes irreversible consequences to the environment; the value of the land, forest and water resources will be considerably reduced. It is obvious that along with the environmental constraints it is necessary to consider the economic constraints leading to the inappropriate development of the resources, the costs of which are currently higher than the costs of similar resources and the supply of which from other regions can be established in the shortest possible time and at an affordable price [6].

Next step in preparation for specific investment decisions is the calculation of the planned costs when the expected budgetary and commercial effectiveness for each phase of the development of specific promising resource is established.

The economic rationale for the use in business of prospective resources possessed by a region is based on the assessment of current and future resource needs of a region's economic complex and the need to satisfy them at the expense of own resources; reassessment of existing resources with the respect to the efficiency of their use through the application of traditional technologies; the assessment of prospects of attracting resources to the turnover position of necessity to attract additional financial and technical resources.

In the management of resource provision of a region there is the pressing question of awareness, that is, set of interrelated elements that include the official information electronic databases and other information resources, the formation of which involves respective status authorities and contains information about socio-ecological-economic system of the region, as well as helps organize, process, and supplement data in accordance with the policy needs of a region and its control system. The materials underlying the information should be available to all interested parties, which is necessary to provide the information predominantly in

an electronic form to ensure easy and effective use by analysts.

In this regard, the system of resource monitoring to ensure ecological and socio-economic development of the region is introduced, which would represent a system of data collection on regional projects defined by using certain key indicators for operational diagnosis and assessment of rational use of the resources of the area taking into account external factors and internal characteristics of a region, can become the compass that provides and creates new competitive advantages of the region [4, 7-8].

The necessary condition for its good functioning is a comprehensive study of the current region resources, taking account all factors influencing their intended use, linkages between monitoring actors. The collection and processing of information that should be brought by both the state and local governments, is of stable character, a number of facilities for regional management requires constant monitoring because of their specificity, or tendency to change, that is why it is necessary to constantly update the data.

It should also be noted that a region, as the system, has a tendency to development and transformation, which must occur without significant fluctuations, be fit for purpose and take into account the interests of a modern society. Resource provision of a region is the basis of its development, so getting the information about resources is the result of the work of the regional monitoring and is of particular value to regional authorities.

The main purpose of the monitoring system of the resource base involves the collection of data that adequately characterize the problem situation connected with the object and objectives; an analysis of the situation, through the development and calculation of indicators measuring the effectiveness and resource intensity of the process of solving specific problems or tasks; development of project management solutions aimed at ensuring the competitiveness of a region and its socio-economic development based on the assessment of the situation; reduction of the time of managerial decision-making.

The problem of dependence of local budgets on transfers from the state budget while reducing social spending, without adequate compensation for stable sources of income and shifting to the region, those spending powers to the regional level it is often impossible to cope is another aspect of the study of the interaction of optimal resource provision and decentralized policies (Analytical materials of the Ministry of Regional Development). Issues indicate that the carried out measures are not enough to increase the level of autonomy of local budgets, as well as to preserve, renew and use efficiently the resource potential of certain administrative-territorial units.

**Conclusions.** The basic principles of modern regional development are influenced by the decentralized policy of the State; therefore, scientific approaches to the formation of the optimal resource support have to be developed on the basis of the characteristics of these processes. Priority areas for optimal support of

regional development in conditions of transformation economy, first of all include the rational use of all existing on-site resources integrated to form the region's ability to develop and are aimed to meet the needs of the population in relation to socio-ecological-economic and managerial factors; involvement in the management system of the most dynamic ones in the present, the intangible resource of the state and regions; improving the reliability of the estimates through the application of criterion-evaluation of the results; the organization of effective mechanism of use of available and potential resources in a region with the perspective vector of ensuring budget revenues of a region; the value of prospective resources should be determined not only by taking into account the development needs of production, but also taking into account environmental constraints. In addition, special attention should be given to the formation of official information electronic databases and other information resources containing information about the socio-ecological-economic system of a region and organize, process, and supplement data in accordance with the policy needs of a region and its management, as well as the introduction of a monitoring system of the resource to ensure ecological and socio-economic development of a region for the rapid diagnosis and assessment of rational use of the resources of the area taking into account external factors and internal characteristics of the region.

In the future, it is advisable to explore issues aimed at improving the system of institutional measures of optimal resource provision as well as the potential formation of inter-regional integration with the aim of providing a perspective of the motivational mechanism of regional development.

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## **INFLUENCE OF THE MINIMUM SALARY LEVEL INCREASE ON THE BUSINESS ENTITIES ACTIVITY**

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On the modern level of productive forces' development the government of Ukraine in its social-economic programs introduces the policy of the social standards' increase. It takes into account the rate of minimum wages for the employees of different business patterns, and it does not take into account increase of tax burden on the business entities. It is necessary to state that in terms of modern market relations in the country's economy to the negative consequences of wages increase one should refer: low level of real income of the population, low level of pension provision, inflation risks, high level of tax burden, strengthening of fiscal control, raise of corruption [1].

All mentioned above conditions the timeliness of the research topic and its main aim, which is in the implementation of the complex economical justification of influence of labour remuneration level increase on the economic activity of the business entities. The subject of the research in this article is the development of theoretical and methodological issues as to the formation of the social standards in the business organizations' activity. Under the term "business entities" we mean entities of economic relations, which perform business activities [2].

The level of employees' labour remuneration plays an important role in the effective social welfare provision of the enterprise. J. Chesloch and T. Callie were researching the changes of the labour remuneration in the consulting companies and educational establishments [3]. They established the differences between the business-sectors and levels of state funding of these sectors. While studying of labour remuneration key features it is necessary to pay attention to the salary structure in various categories of employees. Thus, in the works of scientists M. Malul and

A. Shoham [4] special features of salary accounting for the top-management depending on its real qualification are studied. Authors of this article consider it

to be the basic feature for the establishment of the level of labour remuneration according to qualification of the company's top-management and its possibilities to adopt effective managerial decisions [1].

A valuable issue in the research of remuneration changes in business structures is the study of resource possibilities of business organizations, which can be directed to increase of employees' labour remuneration. This problem was studied in the work of scientists V. Ng and D. Feldman [5], in which scientists studied the problematic issues of financial resources preservation and delays in the reaching high level of labour remuneration because of career. The issues of negotiations between the employer and employee concerning the changes in the remuneration, namely development of flexible approach to the interconnection between the chief and the subordinate in the sphere of the establishment of the optimum level of remuneration for both sides, were studied in the work of the scientist D. More [6].

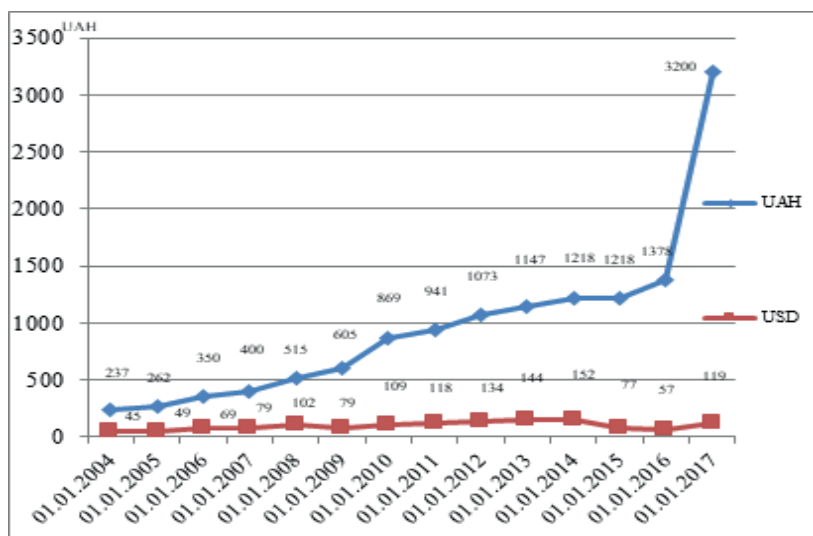


Fig.1. Dynamic pattern of the minimum labour remuneration growth in Ukraine during the period 2004-2015 [7]

Among the research works, devoted to the role of labour remuneration and social welfare provision in the activity of business organizations, little attention is devoted to the establishment of dependence between the payroll budget growth and social contributions, which are compulsory to be paid by the entrepreneurs. That is why this issue is to be studied in this article. Scientific hypothesis implies the improvement of methodology of influence of labour remuneration growth on the activity of the business sector entities [1].

During the study of organization-economic issues the level of social standards in



the country should be distinguished. Dynamic patterns of the growth of the minimum salary in Ukraine during 2004-2015 should be analyzed. It was established that in the period 2004 -2015 in Ukraine there took place the dynamic pattern of the initial increase of the minimum labour remuneration in the equivalent Dollar amount, and in the period 2012-2015 inclusive the dynamic pattern was negative, as the decrease of the level of minimum labour remuneration from 134.29 USD till 57.42 USD (difference 76.87 USD) took place [1].

According to the data of Ministry of Social Policy of Ukraine minimum salary is officially received in Ukraine by 3.7 mln employees (2.6 mln employees in the private sector) [1].

It was established that the situation, which leads to the shadowing of relations between the employer and employee is observed. It is better for the business entities to show minimum salary in the income declaration then to set high salary to the employees and pay high taxes. As a result these processes lead to the decrease of income into the country's budget. The steps of the country government's policy aimed at the social standards' raising in order to increase budget's income are quite understandable. While the formation of the effective social policy, aimed at increase of the social standards level, it is necessary to work out main rules of effective social welfare provision which take into account necessities of the business entities. They characterize the effective direction of the minimum labour remuneration increase for all entities of this process. To these rules authors refer:

- equilibrium principle, which characterizes balanced increase of social standards, accounting economic situation in the country, price level, paying capacity of the population;
- pro rata principle, which establishes the dependence between the labour remuneration increase and level of the tax burden, which has to be optimum for performing effective business activity;
- principle of equality, which includes equal rights among all participants of the process before the law and their keeping to laws and regulations. The participants are: entrepreneurs, employees, taxation bodies;
- principle of non-refoulement, which contains the realization of the components of the sustainable development in the entrepreneurs' activity. It means that business-processes of the business organizations have to be aimed at stable growth, social responsibility and increase of the business competitiveness level [1].

Authors claim that the developed rules of the effective social welfare provision in the activity of the business entities characterize development of theoretical issues and social welfare provision in context of sustainable development. Practical grounds of the consequences of the minimum salary increase for the entities of the business sector should be analyzed. There should be studied salary growth level and social contributions during the period of the fourth quarter of 2015-2017 in the activity of the enterprises TOV "BBB", TOV "Avtogazproject", TOV "LMG" (Table 1) [1].

Table 1

**Comparative analysis of the payroll budget and social contributions  
in the activity of TOV “BBB”, TOV “Avtogazproject”, TOV “LMG” [1]**

Index	Years			Deviations 2015 / 2016,%	Deviations 2015 / 2017,%
	2015 (4quart.)	2016 (4quart.)	2017 (4quart.)		
TOV "BBB"					
Payroll budget, UAH (USD)	12768 (552)	13650 (508)	29700 (1105)	107	233
United social tax, UAH (USD)	4694 (203)	3003 (112)	6534 (243)	64	139
Personal Income Tax, UAH (USD)	1915 (83)	2457 (91)	5346 (199)	128	279
War Tax, UAH (USD)	192 (8)	205 (8)	446 (17)	107	233
TOV "Avtogazproject"					
Payroll budget, UAH (USD)	35304 (1526)	38700 (1439)	78900 (2934)	110	224
United social tax, UAH (USD)	13239 (572)	8514 (317)	17358 (646)	64	131
Personal Income Tax, UAH (USD)	5296 (229)	6966 (259)	14202 (528)	132	268
War Tax, UAH (USD)	530 (23)	581 (22)	1184 (44)	110	224
TOV "LMG"					
Payroll budget, UAH (USD)	42972 (1858)	46350 (1724)	97500 (3626)	108	227
United social tax, UAH (USD)	15797 (683)	10197 (379)	21450 (798)	65	136
Personal Income Tax, UAH (USD)	6446 (279)	8343 (310)	17550 (653)	129	272
War Tax, UAH (USD)	645 (28)	695 (26)	1463 (54)	108	227

Taking into account National Bank of Ukraine currency exchange rate for the date of estimation (USD/UAH 1:23.13 in 2015; 1:26.89 in 2016.) the great leap of expenditures for the labour remuneration in the predicted period was established. In TOV “BBB” it amounted 215%, in TOV “Avtogazproject” it amounted 205%, and in TOV “LMG” – 210%. This growth of expenditures is certainly a negative

factor, and it influences the cost of all business processes and additional cost of the performed services for all participants of the business sector [1].

Regressive analysis, which characterize formation of the regressive function of four variables and formation of the mathematical equation ( $y$ ) of dependence of the payroll budget (accounting the minimum salary growth) and social contributions, should be conducted [1].

$$y = \sum_{i=1}^n f(X_1, \tilde{O}_2, X_3, X_4) \rightarrow \min$$

where  $f$  – the function of the description of the payroll budget and social contributions dependence; incoming data:  $X_1$  – payroll budget;  $X_2$  – united social tax;  $X_3$  – personal income tax;  $X_4$  – war tax;  $n$  – number of business entities.

Herewith, it is necessary to state some limits for this function, namely:

$$X_1, X_2, X_3, X_4 \geq 0; n \in [0; \infty]; u_2, u_3, u_4 = \text{const}$$

where  $u_2$  – rate of the united social tax account;  $u_3$  – rate of the personal income tax account;  $u_4$  – rate of the war tax account.

While the research, authors distinguished following economic models

$y_1, y_2, y_3, y_4$ , which characterize dependence of the payroll budget (accounting the minimum salary growth) on the variable of united social tax payment

$f(X_1, X_2)$ , personal income tax  $f(X_1, X_3)$ , war tax  $f(X_1, X_4)$ ; total social contributions  $f(X_1, X_2, X_3, X_4)$ . These models are presented in the fig.1. [1].

During investigation it was established that functions of the payroll budget dependence on the social contributions are presented by the simple linear regression, that is substantiated by the dependence of the payroll budget growth level (PB) (axis OX, independent variable, characterizing the salary value–  $x$ , size [0-3719] (USD)), on the growth of the amount of the social contributions (SC) (axis OY, size [0-1673] (USD)) (UAH / USD currency exchange rate of the National Bank of Ukraine on the date of estimation: December, 2016 (1:26.89). Also, linear equations, presented in the fig. 1 were chosen according to the criteria that means the maximization of the approximation consistency, that increases authenticity of obtained data [1].

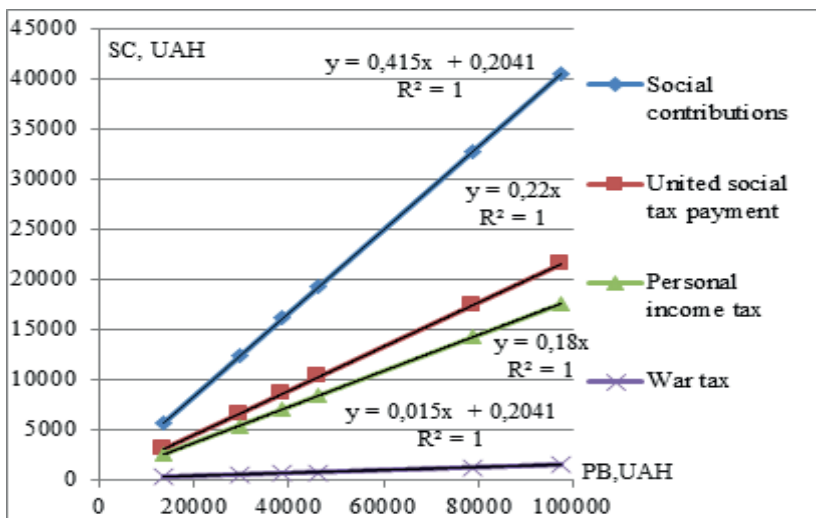


Fig.1. Payroll budget dependency diagram, accounting variations in the minimum salary changes and payroll taxes [1].

Authors proved that the established dependence between the growth of the payroll budget by means of minimum labour remuneration growth and increase of social contributions has negative influence on the economical activity of the business entities because it influences the increase of the tax burden rate in their activity. Moreover, creation of the favorable social-economic and regulatory climate for their further sustainable development is an important issue in the effective functioning of social-economic system. In the article of I. Sotnyk, T. Kurbatova, and G. Khlyap [8].

One more important issue, which influences the increase of social standards level, is the presence of sufficient amount of current capital for effective activity of business entities. While the formation of the dependence function of the payroll budget from the social contributions it is necessary to mention the limitations of this function, namely rates of the tax burden, which have to be constant. Implementation of this condition allows the possibility to increase the obtained results authenticity and to decrease inaccuracy of calculations. Authors declare that the sharp increase of the minimum salary leads to the increase of the level of social contributions for the business sector, and as a result – stuff reduction and introduction of the shadow schemes of salary payment. Thus, there is the necessity to optimize tax burden in the context of the minimum salary increase in the business entities activity. Authors state that in the business administration it is necessary to offer organization-economic measures, oriented on the decrease of the tax burden. These organization-economic measures are the following [1]:

- decrease of the tax rates of the social contributions for the business entities, which can lead to unshadowing of the business and payment of legal salaries without shadow schemes;

- introduction of the tax holidays for the entrepreneurs, whose business is younger than one year, that gives an opportunity to build up the volume of turnover capital for the effective further administration;

- decrease of the loan rate for the business sector till 10% per year, with following decrease till 3% in the context of sustainable development. This measure can influence the investments in the business sector;

- introduction of business patterns with collateralized property, which will create the capital stock of the business organization for the case of loan debt. This method will lead to the decrease of risks of nonpayment for the material assets and other payments by the business entities;

- implementation of the state programs of the investor attraction to the business sector. They are aimed at creation of the new working places in the region and increase of the salary for the employees.

Accomplishment of the these organization-economic measures will solve existing for the present day administration problem in the social sphere for the business entities. For the further scientific researches on this topic authors offer not to be limited only by examination of the monetary policy, but to study this problem in complex with analysis of investment and financial provision of business organizations' activity, building-up of organization-economic provision of employees motivation rewards in the work of business entities [1].

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## **ECONOMIC ACTIVITIES OF SELF-GOVERNMENT BODIES IN UKRAINE: HISTORICAL RETROSPECTIVE REVIEW**

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As a result of reforms in the 1860–1870s in Ukraine, the activities of the elected local self-governance institutions – zemstvos began. At that time Ukraine was not independent and its considerable territory was a part of the Russian Empire, that is why “The Regulations about Zemstvo Institutions”, which determined the composition, structure, the way of their formation and the range of power, were also followed in Ukraine [1]. Zemstvos in Ukraine began functioning from 1865 in 9 provinces: Volyn, Katerynoslav, Kyiv, Podillia, Poltava, Tavria, Kharkiv, Kherson, and Chernihiv. Local people elected deputies on the level of provinces and povits (districts), who made decisions, and zemstvos implemented them. There was no clear government program of zemstvos’ development, and it enabled them to determine the problems, which required immediate solution, independently. With this purpose zemstvos employed doctors, teachers, agronomists, statisticians, economists, and other specialists. After a long time of hard work, the first considerable results of economic activities were received, and the gained experience and devotion to work is a topical example for modern state functionaries.

At present, self-governance bodies in Ukraine gain more authority supporting economic independence. For successful implementation of the reform as to

raising the authority of the local power bodies, not only the historical grounding is necessary, but also taking into account the typical mistakes, made by the previous generations of the reformers. Analyzing the latest research of modern economists (Soskin, 2014) [2], who see the future of Ukraine in developing national economic interests, based on business, the development of small and medium businesses – the experience, gained by zemstvos, only enforces the topicality of the given research. The measures of economic character, developed, planned, and introduced by zemstvos on the territory of Ukraine are the subject of the investigation. The object is the economic activity of zemstvos in Ukraine.

**Brief Literature Review.** The works by foreign authors are interesting from the viewpoint of evaluating the economic potential of local self governance bodies. The first group of research by H. Fischer (1958) [3], S. Harcave (1956) [4], and

I. Timberlake (1972) [5] reflects the main idea, that zemstvos introduced new liberal ideas and views, which were not limited by government limitations, thus having the potential for implementing the bravest economic plans in the economic sphere. The second group of foreign authors: B. Sumner (1966) [6],

X. Seton-Watson (1967), [7], R. Robbins (1987) [8], and T. Pearson (1989) [9] mostly evaluated the home policy of the authorities during the reformation period and considered that the control over the development of zemstvos' economic activities by the state was admissible during the transition period.

National scholars created three groups of work, devoted to zemstvos: the first one describes the general vectors in the sphere of social-economic activities and is represented by the papers of T. Sharavara [10], O. Obmetko [11], T. Lobas [12], and others; the second group is devoted to the regional development – the economic achievements of zemstvos in separate provinces: A. Maskina [13], O. Petrov [14], and others; the third group analyzes in more detail the kinds of economic activities: M. Maslov [15], O. Zavalniuk [16], and others.

The purpose is the analysis of the economic program of self-government bodies' actions in the second half of the XIXth – the beginning of the XXth centuries in Ukraine and the kinds of activities, initiated by them in the economic sphere in the context of gaining historical experience.

**Results.** At the beginning of the XXth century, specialists officially distinguished the directions aimed at improving social standards and activities in financing various sectors of the national economy, that is, they separated social activities from economic. It caused the appearance of that time classification of zemstvos' economic activities and their kinds, such as agronomy, insurance and crediting the population, road construction and repairs, and cooperation [17].

Taking into account the fact, that the land reform did not envisage close information connection between provincial and district zemstvos, because the authorities tried to minimize the contacts between them with the aim of avoiding the formation of the opposition, the plans of economic activities in each zemstvo were made independently, trying to satisfy the demands and needs of their local

communities. All this caused the different level of success in developing the directions of economic work, increased regional peculiarities of zemstvos' development, often being an obstacle to solving complex problems.

According to the Law dated 12.16.1900, the government envisaged the financial support of the zemstvos' economic activities, but in fact the Law was not effective. The sum of 500 thousand rubles was allocated to the Minister of Internal Affairs; however, as V. Kuzmin-Karavaiev mentioned, the credit was not used, though there were a lot of problems. Judging by the 35 year experience the workers of zemstvos understood the attitude of the state: "if you cannot increase spending on the needs of the population – do not increase

it" [18, 429], because addressing for financial assistance from the state would lead to blaming zemstvos in incompetence.

Having analyzed the researches of the second half of the XIXth century, we can conclude that during the first decade of zemstvos' functioning no serious plans of their own economic activities were made.

The support of agricultural development became the following important direction of zemstvos' activities. As it was mentioned in the «Brief Outline of Zemstvos' Economic Measures in 23 Provinces of Russia» [19], agricultural activities were represented by three kinds of work: the organization of experimental fields, distribution of the new variety seeds, and supply of farm machinery. Later on, zemstvos were engaged in food supply [20] and organized the work very well.

After receiving the first results of their activities, zemstvos began publishing the reviews (reports) of their achievements in the field of agriculture [21], then they started publishing the literature of scientific-methodical content. First of all,

they demonstrated the correct scientific-methodical

approach, having invited to cooperation the specialists and scientists [22], [23], who prepared valuable material for publishing, which was accessible and clear to ordinary people. Zemstvo functionary D. Shorygin stated, that the consultations of the inhabitants in different places as to the right choice of seeds, rational cultivation and sowing the fields, pest control became a well organized process [24]. Such interaction lasted for several decades.

Considering the regional peculiarities of zemstvos' economic activities, we should like to notice, that they were caused not only by the needs of the population, but the level of developing the material base of separate provinces, certain persuasions, and the vision of the situation by zemstvo functionaries themselves.

For example, Lubny and Zolotonosha county zemstvos of Poltava province began to provide material and financial assistance even to agricultural partnerships, and later on, to invest money in the construction of permanent buildings for lectures, libraries, and reading halls. Thus, besides spreading special literature for educational purposes, the organization of lectures became the following correctly chosen method of their activities [10].

At the end of the XIXth – beginning of the XXth centuries, zemstvo functionaries



of Poltava province analyzed the results of their economic activities and noted, that the best tendencies of development were registered in tobacco growing, horse-breeding, and forestry [25]. The essential obstacles to the further development were the poverty of peasants and the lack of land owned by them.

Kharkiv provincial zemstvo was the first to allocate money for agronomic assistance to the rural population having formed its budget in such a way as to assist the peasants in buying seeds of good varieties, machinery, and seeding machines. Such approach was caused by the Ministry's draft of the food reform of 1909. It was the fight against crop failures that urged the government to cooperate with zemstvos more closely. The result of such cooperation was the formation of reserve funds, and it was the right following step in the work of zemstvos to support the population [26].

Katerynoslav provincial zemstvo chose the different direction and became the active lender of peasants and initiator of arranging elevators. The zemstvo actively promoted its methods of management and urged others to follow their experience. According to the economic estimates of 1916, the zemstvo was the richest in the whole Russian Empire, because its economic expenditures amounted to 5,172,345 roubles [27].

The economic specialization of Chernihiv provincial zemstvo concerned horticulture, apiculture, and sericulture. Most counties of Chernihiv province had such agricultural specializations. At the same time, the zemstvo was actively engaged in swamp drainage, which was connected with the natural conditions of the region

It should be stressed, that besides solving the problems of the population and the chosen directions of economic development peculiar for various regions, zemstvos also realized the decisions of the government. Besides the regulations, which obliged zemstvos to solve food problems, the government spread the Provision about economic responsibility of zemstvos for motor roads. According to the Decisions of the State Council of April 5, 1883, the Provision contained 38 items. Though being in charge of the roads, according to the decision of the government, zemstvos did not cope with the task successfully.

The bodies of the local self governance in Kyiv province had the status, similar to other zemstvos, but they also had the uniting function, organizing various zemstvo congresses. For example, on January 27, 1914 the congress of the representatives of the southern-western zemstvos took place in Kyiv. The congress was organized by the partnership engaged in buying farm machinery and implements on the initiative of Kyiv provincial zemstvo [10].

The support of cooperation became a separate direction of economic activities of the self governance bodies. The most active organizers of cooperatives in the 1864-1917 were: Poltava, Katerynoslav, Kyiv, Chernihiv, Kherson, Podillia, and Volyn zemstvos. Despite the peculiarities of regional development of the territories, economic specialization, the representatives of the zemstvo elite, highly

skilled specialists always gave recommendations concerning the organization of cooperatives. Among the most well known such works should be mentioned: by V. Khyzhniakov «Cooperation and

Zemstvo» [29], I. Podolskyi «The tasks of Zemstvo and Cooperative Institutions...» [30], P. Sokolovskyi «The Activities of Zemstvos in Organizing Credit Loan-Saving Partnerships» [31], and others. First of all, zemstvos began organizing courses in credit cooperatives and education of the population. The most active were Chernihiv zemstvo, later on, Volyn, Podillya, and Kyiv provincial zemstvos. Agricultural cooperatives were first created in Poltava and Kherson zemstvos, then in Kyiv zemstvo. After giving consultations and providing instructions, the following step was the creation of financial funds giving loans to cooperatives on various activities, and the formation of loan partnerships. These economic steps considerably improved the material well-being of the population and justified themselves.

The organization of zemsto statistics was also considered a successful sphere of economic activities. The development of statistics at that time was called to life by considerable social and economic changes in the country. The creation of zemstvos caused the problem of the population taxation, and studying its material opportunities had to be started. It was also necessary to analyze economic and quantitative indices of zemstvos' activities. The development of statistics resulted in the creation of scientific theoretical and practical fundamental research. This sphere of activities was outside the circle of duties, stated in the «Regulations about Zemstvo Institutions». Zemstvo statisticians worked out clear and exact system of collecting information. The work by A. Kaufman [32] can be mentioned as one of the examples of scientific-methodical developments and instructions in conducting statistical analysis.

In the late 1880s – early 1890s, certain directions of statistical work were established. As a result, sanitary, veterinary, and agricultural statistics, etc. appeared. It should be noted that the development of statistics began in the areas requiring operational interference and the quickest assistance.

The culmination of zemstvo activities became full regulation of zemstvo land cadastre [33]. Beginning from the 70s of the XIXth century, zemstvos started a difficult land estimation work all over the Empire. Zemstvos in Ukraine acted more actively, taking into account higher soil fertility and urgent needs to give the true evaluation of land cost. Such work caused the appearing of new statistical methods of research. For a long time, under-evaluation of the existing lands' quantitative registration was a considerable drawback of zemstvos' activities. As the land registration was conducted on the basis of outdated existing plan materials of the general and special boundary making, it influenced the accuracy of the conclusions. Despite that criticism, the zemstvo land cadastre had many advantages over some Western European land cadastres (the most accurate was the Austro-Hungarian cadastre). In particular, it was characterized by a high quality of land-estimation

work. Zemstvo specialists provided not only the correct description of lands, but they suggested their own classification, which later on gave the impetus to scientific theoretical soil science, the development of soil geography. Zemstvos conducted land-estimation work using the principles of Prof. V. Dokuchaev, a well-known founder of the methods of soil quality evaluation. V. Dokuchaev suggested that the soils are to be evaluated according to their natural properties, taking into account crop yield. He became the author of the natural-historic method of soil rating, which consists in soil classification according to chemical, geological, and physical properties.

The development of such kind of economic activities, as insurance of the local population, including that against fires, was the most difficult. In our opinion, the reason was the following: zemstvos in all the provinces got the permission of insuring against fires at different time, which prevented them from uniting their efforts and sharing experience. For example, according to the Law dated January 31, 1906 the Regulations on zemstvo insurance was extended to Kyiv province. Only in 1907 zemstvos began to register agricultural buildings and developed the plan of reforms to improve the fire-prevention measures. The number of fires was considerably reduced in 1910, and by 1916, it could be stated, that such work was useful for the state [34].

It should be noted that the economic activities of self governance bodies took place during different historical periods, in particular, the Counter-reforms period in the 1870–1890s, the revolutionary events of the 1905–1907s, the Stolypin agrarian reforms of the 1909–1911s, the First World War of the 1914–1918s.

During the time the Prime Minister P. A. Stolypin, the system of isolated farmsteads (khutirs), was initiated, which is considered the proto-type of modern farms. He also initiated mass migration to Siberia of smallholders and landless peasants. Zemstvos were also involved in this process by the government. Chernihiv provincial zemstvo publicly emphasized that the authorities obliged, but the funds for migrants were not allocated. In 1909 Stolypin circular «On the assistance to the small isolated farmsteads» was brought to the attention of the provincial zemstvos. They also participated in working out the projects of organizing economic assistance to khutir farms, although zemstvo themselves could not choose the form of assisting migrants. Zemstvos created the centers organizing public lectures to peasants, distributed agricultural literature, organized model khutir farms for those who wanted to see the advantages of leaving the community and becoming an independent farmer.

**Conclusions.** Thus, on the grounds of analyzing various kinds of economic activities of provincial zemstvos in Ukraine and their regional specialization, it is possible to make the conclusions about their work. Active formation of economic activities lasted to the middle of the 1870s. During this period, zemstvos founded local banks with the aim of overcoming the consequences of abolishing serfdom after the reform of 1861. Credit and loan-saving partnerships were actively founded.

The important work of creating land cadastre of the state began. To the middle of the 1890s, zemstvos organized small land credit, worked out the methods of providing statistics. At the end of the XIXth – beginning of the XXth centuries zemstvos invested considerable sums of money in agronomic congresses, organized the extension courses for agronomists, were engaged in selling farm products, initiated experimental fields and elevators, brought new varieties of seeds and modern farm machinery, made efforts in tobacco growing, horse breeding, horticulture, apiculture, and sericulture. In 1916, the economic department was opened in the All-Russian Zemstvo Union, with the aim of improving the functioning of the national economy, because the exhausting World War I of the 1914-1918s lasted. Zemstvos functioned on the basis of the innovative methods in economics, which present local bodies of self governance can adopt. In particular, zemstvos organized lectures (about pest control, new methods of field cultivation, the latest machinery and technologies), both for the professionals in different branches, and the local population; they actively spread scientific literature; gave recommendations to those who wanted to organize cooperatives; formed reserve funds for agronomic assistance to the population; organized public zemstvo congresses to discuss the most problematic issues of economic activities, coordinated actions between different zemstvos, and shared the experience. The creation of a new land cadastre became a considerable assistance to the state. It is well known, that this problem is actual for Ukraine at present and requires uniting efforts of various bodies of power and specialists. Thus, taking into account the drawbacks, made by zemstvos at the first stages of their activities, caused by the absence of the necessary experience, clear economic plans and programs of work, the impossibility to unite the efforts because of the government prohibitions, modern state functionaries have to take into account their experience and achievements: they can organize broad discussion of the existing economic problems at the local level, uniting local communities for their solving, attract the most experienced specialists to their activities, make promising plans of economic development on their territories.

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## **REALIZATION OF THE SYNERGY BASIS ON ESTIMATION OF INNOVATIONAL POTENTIAL OF REGIONAL SOCIO-ECONOMIC SYSTEMS**

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Current state and prospects for the development of regional socioeconomic systems (RSES), which form the basis of any economic system nationwide. Implementation of administrative reform in Ukraine and the development of decentralization processes, first and foremost, require from the scientists and practitioners of managing the transition to fundamentally new technologies and mechanisms for the formation and management of the potential of the RSES, as evidenced by the research, the results of which are reflected in the monographs [3;

4; 5; 7; 8 ; 10].

The unstable behavior of various economic dynamic systems is characteristic of economic evolutionary processes. Linearity and stability are not universal, but very limited due to certain circumstances, the nature of which is emphasized by leading both foreign and domestic scientists V.B. Zang, V.S. Ponomarenko, M.O. Kizim, O.M. Tridid, G. Hacken [2; 9; 11].

Such placement of emphases is different from those on which the traditional economy is being built. For example, P.A. Samuelson in economic phenomena tried to identify exactly the linearity and stability as the basic properties, because using the traditional static analysis and the principle of conformity can only deal with those systems in which small changes in parameters lead to small changes in characteristics, which analyzes and proves the author of the monograph [10].

The synergetic approach, in contrast to the traditional dynamics, reveals those properties of dissipative systems, for which small changes in parameters cause qualitative changes in dynamic behavior [2; 11]. When a system becomes dynamically unstable, for example, because of the “perturbation” of the parameters, the nonlinear members become very important for determining the nature of its behavior. In this regard, “the presence of analogies in the main provisions of various theories means that there should be a more general theory that combines particles and unifies them with respect to these common properties” [2].

V.S. Ponomarenko, M.O. Kizim, O.M. Tridid in this regard point to the inability of the traditional economic theory “to get close to the empirical reality. The scientific value of abstract concepts and formal theoretical constructions is respected. They rely in their studies on equilibrium analysis, leaving science blind to phenomena associated with historical changes. And this leads to the wrong assumption that it is possible to anticipate all possible cases and assess their consequences” [9, p.74].

The synergetic economy refers to the field of economic theory, which has the great practical importance for sectoral and specific economic activity. It concerns the temporal and spatial processes of economic evolution [2; 11]. In particular, the synergetic economy deals with unstable nonlinear systems and focuses on nonlinear phenomena in economic evolution, such as structural changes, bifurcations, and chaos.

Consideration of the importance of using the synergistic approach for solving the task of managing the development of the RSES is due to the definition of the relationship between synergetic and traditional economics [8, 10]. Since the synergetic economy deals with economic evolution, it is part of the theory of economic dynamics. Under this concept there are many theories (theory of business cycles, the theory of economic growth) and analytical methods, such as the principle of conformity.

All these theories and methods form the content of the traditional theory of economic dynamics. The synergetic economy is an extension of the traditional theory of economic dynamics, due to the fact that the results of the latter can be



explained within this new theory, in addition, it seeks to explain other economic phenomena that the traditional theory ignores [11]. From the standpoint of the synergetic economy, the approaches that make the traditional theory of economic dynamics are not universal, but only in individual cases. Although it can't be argued that the synergetic economy solves all problems of economic evolution, we can conclude that this new theory allows a dynamic economy to explain and even predict some dynamic economic processes that can't be explained by traditional theories and methods.

The synergetic economy offers a new direction in explaining complex economic phenomena, including the management of the potential of the RSES in an unstable market environment [10].

The fundamental difference between the synergetic economy is that it attaches particular importance to nonlinear forms of economic evolutionary process, instability and structural change. The synergetic economy treats nonlinearity and instability as a source of diversity and the complexity of economic dynamics in management. And since the potential of the RSES is a dynamic and open system, the application of the principles and methods of the synergetic economy is considered scientifically expedient and lawful.

The proposed scientific concept is based on the special importance and necessity of integrating the potential of the RSES into a complex systemic set that provides sustainable development.

Optimization of interrelations and dependencies of numerous and diverse resources, opportunities and benefits of the enterprise qualitatively transform and enhance the potential of the socio-economic system as claimed by scientists [1; 7].

The RSES potential should take into account a complex of already established relationships and relationships that reflect the past and present process of functioning and development of the RSES in the form of a real level of resource potential, as well as a detailed, differentiated analysis of strategic ties and relations with long-term projections of opportunities and resources, taking into account their optimal use through the normative level of potential.

Such a complex potential of the RSES was considered by us as a strategic potential of the socio-economic system. Thus, strategic potential should be analyzed in the form of a system of functional relations that has developed between the constituent subsystems of the real level of potential and the normative level of capacity development.

Reflecting the specific conditions of the industrial activity of the enterprise, normative potential (standard) is defined as the level of available capacity, taking into account stimulants and anti-stimulants.

Indicators that have a positive stimulatory effect on the RSES potential are stimulants, and signs with opposite properties - anti-stimulants. The normative level of potential - the reference level is the level with the maximum values of the indicators of stimulants and the minimum - anti-stimulants [10].



Estimates on these indicators allow obtaining sufficient information on volume and objective content to manage the potential of the socio-economic system.

The ratio of real and normative potentials reflects the dialectical relationship of resources available and strategic, demand and supply. Normative potential over time is ahead of real. The strategic potential of the RSES is used for comprehensive potential assessment [10]. The criterion of the strategic potential of the socio-economic system ( $Y_c$ ) is a function of assessments of all its components:

$$Y_c = f(Y_p, Y_i)$$

where  $Y_p$  - indicator of the real potential of the RSES;

$Y_i$  - indicator of the normative potential of the RSES.

The system of forming the real potential of the RSES can be represented in the form of a hierarchical set of certain characteristics (Fig. 1.1).

As can be seen from the diagram of fig.1.1, a generalizing indicator characterizing the real level of the potential of the RSES in general is presented at the second level and is a set of integrated indicators of the first level.

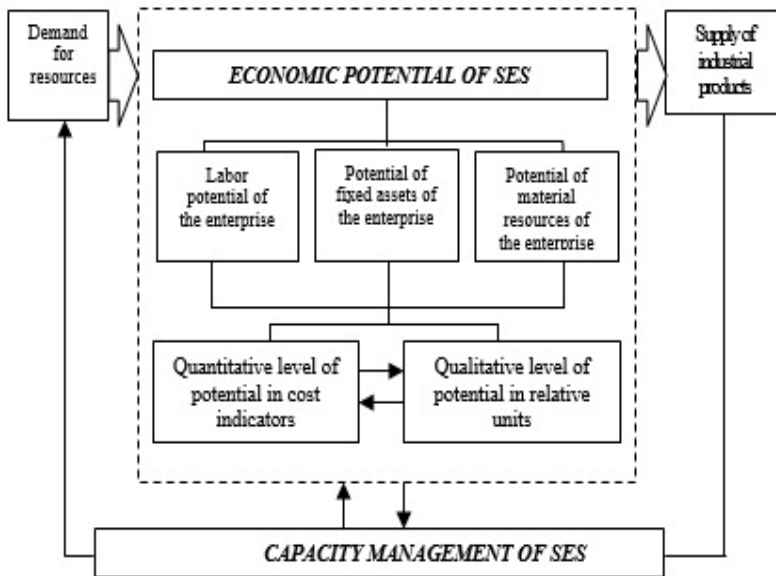


Fig.1.1. Real capacity managements of the RSES

In accordance with the law of synergy, the potential of the RSES is not measured

by a simple sum of potentials in relation to various resource sources [2, 10]. In turn, the subsystems of the system under consideration are the system of potential of RSES for each resource source.

The comprehensive potential indicator for resource sources is proposed to define as follows:

$$Xp_i = \beta_i \times X_{kil_i} \times X_{\pi k_i}$$

where  $X_{kil_i}$  - quantitative level of potential for the i-th resource source of the RSES;

$X_{\pi k_i}$  - a qualitative level of potential for the i-th resource source of the RSES;

$\beta_i$  - the coefficient of synergy of the RSES by the i-th resource source.

The peculiarity of the calculation of potential is its definition, taking into account qualitative and quantitative indicators and coefficients of synergy, which will allow a comprehensive assessment of the level of potential.

A qualitative level of potential is proposed to be calculated as the arithmetic average weighted:

$$X_{\pi k} = \frac{\sum_{i=1}^n K_i \cdot v_i}{\sum_{i=1}^n v_i}$$

where  $K_i$  - coefficient characterizing changes in the qualitative level of the potential for the i-th indicator;

$v_i$  - a significant coefficient of significance of the i-th change in the qualitative level of the potential of socio-economic systems in the current period;

$n$  - the number of indicators for which the change in the qualitative level of potential of the socio-economic system is estimated.

The determination of the weighting coefficients was made on the basis of peer review by ranking the indicators of potential measurement at the relevant levels of significance (for the potential of fixed assets, for example, from 1 – very significant to 8 – insignificant). Expert evaluation is generalized, based on a survey conducted among managers of different levels of machine-building enterprises.

To determine the qualitative level of potential of fixed assets on the basis of research [3; 4; 8; 10], the following main indicators were identified:

- the coefficient of updating ( $X_1$ );
- rate of outflow ( $X_2$ );
- share of machinery and equipment in the total value of fixed assets ( $X_3$ ), %;

- coefficient of wear ( $X_4$ );
- labor productivity ( $X_5$ ), thousand UAH / person;
- fixed-asset turnover ( $X_6$ );
- funds capacity ( $X_7$ ).

As a result of the generalization of expert assessments by summing the ranks, the values of the weighting coefficients were obtained. In one group of coefficients, the share of machinery and equipment in the total value of fixed assets, fixed-asset turnover, funds capacity - they vary from 0.15 to 0.27. The weight of other coefficients was within the range of 0.08-0.12.

Some respondents identified other factors, among which: the level of productivity of fixed assets, the payback period of fixed assets, etc., the value of the weight coefficient on them is 0.03.

The calculation of the qualitative level of innovation potential of the socio-economic system of the enterprise is presented in table 1.1.

*Table 1.1*

**Calculation of qualitative level of potential of fixed assets**

Indexes	Significant factor	Index of increment of the indicator level	Sign of the impact of the indicator on the level of potential	Fraction	Indicator level corrected for a significant coefficient (6)=[1+(5)*(4)]*(2)
The coefficient of updating	0,12	1,6632	+	0,14	0,1364
Rate of outflow	0,08	3,1529	-	0,26	0,0593
Share of machinery and equipment	0,27	0,5059	+	0,04	0,2812
Coefficient of wear	0,07	1,4158	-	0,12	0,0619
Labor productivity	0,11	2,4311	+	0,20	0,1320
Fixed-asset turnover	0,17	1,0230	+	0,08	0,1843
Funds capacity	0,15	0,9775	+	0,08	0,1620
Unaccounted factors	0,03	1,0000		0,08	0,0025
			<b>1,0171</b>		

According to table 1.1 the enterprise has a qualitative level of potential of fixed assets - 1.0171, which was the result of the influence of a number of investigated factors.

In order to calculate the potential, it is recommended to determine the synergy

coefficients, which will result in a level of potential not equal to the amount of resources [8], but will reflect the possibilities of their use.

The calculation of the synergy coefficients carried out as follows:

$$\beta_i = \frac{Xp_i - XH_i}{XH_i} + 1$$

where  $Xp_i$  - the real potential of the socio-economic system for the i-th source of resources, monetary units;

$XH_i$  - normative potential of the socio-economic system on the i-th resource source, monetary units;

For standard accepted the best level of potential of socio-economic system for a certain period of time. On the basis of the calculated coefficient of synergy, the RSES monitors capacity development for the purpose to responding promptly to negative trends. The value of the synergy is within range  $0 < K_e < 1$ . If the calculated level of synergy is greater than 1, then the RSES for some time has become more effective in managing its potential and more rational use the productive resources.

The level of synergy is less than 1, but greater than 0.8 indicates the need for resource conservation measures. The level of synergy less than 0.79 indicates the beginning of the process of degrading the potential of the socio-economic system, requiring rigorous measures regarding the efficiency of the functioning of the RSES in general.

The calculation of the coefficient of synergy of the socio-economic system should be made monthly to adjust the plans for the development of the socio-economic system.

The real potential of the RSES will be determined by the formula:

$$Yp = \sum_{i=1}^n \alpha \beta_i Xp_i$$

where  $Xp_i$  - the real potential of the RSES for an i-th resource source;

$\alpha$  - coefficient of synergy of the 2nd order;

n - the number of resource sources.

For example, we present an enlarged calculation of the value of real potential using an indicator that characterizes one of the most important resource sources - the potential of fixed assets. Calculation of the index of potential of fixed assets is given in table 1.2.

Table 1.2

### Calculation of the potential of fixed assets

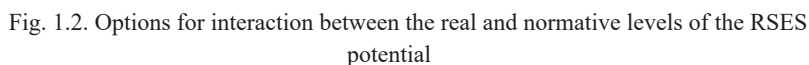
№	Indexes	1 year	2 year	3 year	4 year	5 year
1	Quantitative level of potential of fixed assets, thousand UAH	25791	26154	25674	25630	38996
2	Qualitative level of potential of fixed assets	1,0601	1,0248	1,0639	1,0067	1,0171
3	Integral capacity indicator of fixed assets, thousand UAH (3)=(1)*(2)	27341,3	26802,3	27314,6	25801	39661,5
4	Limits of fluctuations of a qualitative level of potential of fixed assets	±0,0039	±0,0018	±0,0042	±0,0006	±0,0025
5	Limits of potential fluctuations of fixed assets, thousand UAH	±100,2	±46,9	±106,8	±14,8	±96,1
6	Coefficient of synergy ( $\beta_2$ )		0,9803	0,9990	0,9437	1,4506
7	<b>Potential of fixed assets, thousand UAH</b> <b>(7)=(3)*(6)</b>		26274,0± ±45,98	27287,9± ±106,69	24347,8± ±13,97	57533,4± ±139,4

According to the data of Table 1.2, the qualitative level of potential of fixed assets, determined by the given method, decreased by 5%, the magnitude of which the factors taken into account have both positive and negative effects.

In accordance with the above methodology, the complex indicator of the potential of fixed assets amounted to 57.53 million UAH in 2017 (39661.5 \* 1.45). Similarly, levels of labor potential and material resources potential are determined.

On the basis of the proposed method of measuring the potential we can determine the limits of its variation and model its development.

In the process of managing the potential of the RSES it should be emphasized that there is a close relationship between its real ( $Y_p$ ) and normative level ( $Y_H$ ). The leading role in the functioning of the RSES belongs to the normative level of potential, therefore the connection between  $Y_p$  and  $Y_H$  can be determined by the statement. However, there is no doubt and the reciprocal effect of the real potential on  $Y_H$ , which is characterized by corrective communication. The strategic potential of the RSES stands at the same level as these two potentials of all resources, here are some variants of their interaction (Figure 1.2).



However, at a certain stage of the development of the RSES, the vector of the real level of potential Yp “relies” on the limit, due to the possibilities of its development (option b). In this situation, the level of real potential is equal to its normative meaning, that is, management decisions should be more specific, which will allow “to reanimate” the current management system and increase the level of strategic potential.

The last variant of the interaction, when the equalizing of potentials decreases, and as a result comes the situation when the vector  $Y_p$  is located along the boundary, which means that the full exhaustiveness of the possibilities of its progressive development comes to pass (option d). This is due to the inability of the management system to respond to changes in indicators and the need to develop a more flexible management system. Thus, the proposed methods for measuring the strategic potential of the RSES are based on the use of the principle of combining the assessment of the real level of use of the total potential and the need to achieve the main macroeconomic indicative indicators that enhance the balance of the development of the RSES in the long-term perspective.

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$$\frac{dy}{dt} = F(y) - h(t)$$

Suppose that  $E$  – the norm for the use of the RSES potential, then the normative level can be written as:

$$h = Ey$$

This means that the consumption rate of potential is linearly proportional both to the size of the cost and to the size of the potential. Denote the equilibrium point of

the equation (1.7) by  $y^*$ . Then the supported consumption rate of potential given by the expression:

$$Z = Ey^*$$

Consider the case when  $F(y)$  the curve of potential reproduction, and the function  $\frac{F(y)}{y}$  grows in the range  $0 < y < K^*$ . For small ones  $F(y)$  when  $y$  in the range  $0 < y < K^0 < K^*$ , it has a critical (negative) reproduction.

Size  $K^0$  called the minimum level of ability the potential to reproduce. Because the behavior of systems in the case of critical and noncritical reproduction is very close in content, consider only systems with noncritical reproduction function. The basic diagrams for this case are shown in Fig. 1.3.

There are three equilibrium positions. It can be shown that the zero point is stable, if

$$E > E^+ (= F'(0))$$

Then suppose that  $E > F'(0)$ . The value of  $y^+$  is always unstable and corresponds to the unstable use of the potential represented by the dotted area on the “use of potential-cost” curve (Fig. 1.4). If  $E$  begins to grow from the lower level, then there is a point of equilibrium and its corresponding value for the use of the potential  $Ey^* (= E^*)$ . This value is achieved, for example, with  $E^M$

Let's analyze what will happen if you continuously increase the normative level of potential. When the value  $E^M$  passed, small changes in an independent variable

result lead to only small changes in function. However, if  $E$  the passed value of  $E^*$ , the size of the potential suddenly drops to zero.

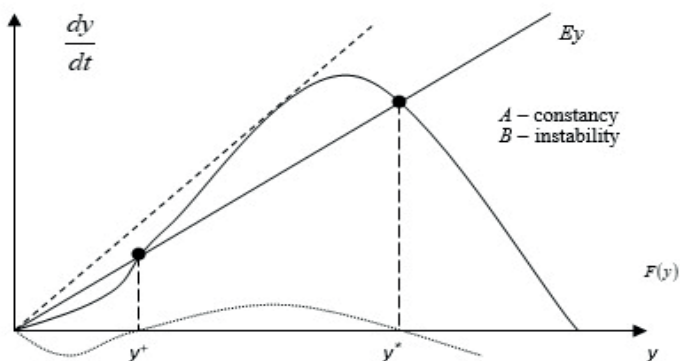


Fig. 1.3. Case of uncritical reproduction of the RSES potential

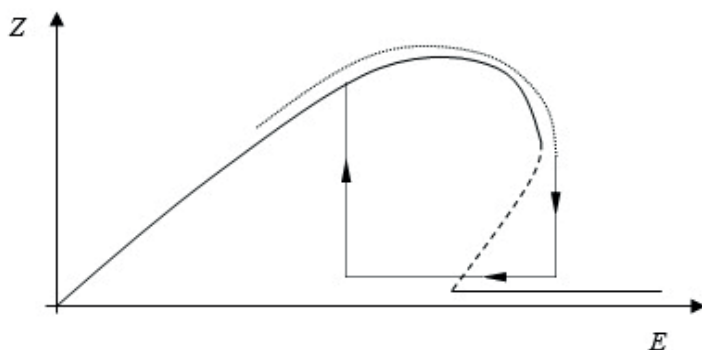


Fig. 1.4. Hysteresis for the function of the dependence of the size of the use of potential from the normative level of potential

Now  $E$  decreases, since at  $E^M > E^*$  the origin of the coordinates is the point of a stable equilibrium, this situation can not be restored by such reduction.

When  $E$  decreases to the level less than  $E^*$ , the zero equilibrium will become unstable, and it will be possible to slowly increase  $E$  to  $E^M$  again. So, there is a hysteresis, as shown in Fig. 1.4.

Thus, we have used the main provisions of the synergetic economy regarding the management of the potential of the RSES, the basis of which is the methodology for



determining the level of potential using qualitative and quantitative characteristics and synergy coefficients, which enables to effectively manage the sustainable development of socio-economic systems of different levels in the strategic perspective.

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## **THE WAYS OF IMPROVING PERSONNEL POLICY AND PUBLICITY IN LOCAL SELF-GOVERNMENT BODIES**

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The main directions to increase the level of professional competence of employees of local government bodies represent a combination of legally regulated measures for the training, retraining, selection, placement and education of personnel in accordance with the requirements of the current national personnel strategy and corporate strategy of a certain organization.

In general, the work with personnel should include: career guidance, professional selection, training, professional retraining; placement and consolidation of personnel; improvement of the motivational mechanism of their activities; improvement of conditions and the attractiveness of labor; professional certification, promotion of professional growth; work with the reserve of personnel; control over the personnel activities; the system of informing the personnel about the tasks of labor collectives; and education of personnel. Nowadays the personnel policy in Ukraine does not meet modern requirements. Managers at different levels of the hierarchy do not have action programs for personnel, and the process of personnel management is reduced to eliminating negative consequences. For such an organization, the lack of means for diagnosing the personnel situation, the assessment of labor and personnel and the forecast of staffing needs are the characteristic features.

Personnel programs should contain the tasks of personnel development, which include: measures to adapt the available labor potential to new requirements, which are provided by the new organization strategy; the new, adequate strategy, the concept of creating jobs and a system of measures to implement it; as well as measures to outstrip those changes that are envisaged by the strategies of the enterprise (organization). Personnel work and processes should acquire a certain system that provides for the existence, interconnection and interdependence of all the significant aspects of personnel management and its continuity.

In order to increase the efficiency of work in a certain direction, it is expedient to ensure the following activities:

1. It is advisable to avoid purely technical, resource approach to personnel as an important factor of production, but to be treated as a social component of the organization's activities, since the full formation and restoration of labor potential depends on the social environment, and this in turn is a function of the effectiveness of economic activity.

2. By carrying out strategic planning of personnel work, it is important:

to determine the real need for personnel in the stages of the strategic period; to establish the availability of personnel in terms of quality parameters and possible projected changes in the strategic period; to identify the lack of personnel in the aspect of their qualitative parameters for the stages of the strategic period, by taking into account the need for new specialists in accordance with the proposed strategic changes in the enterprise; to determine the sources of deficit coverage for personnel over the years of the strategic period and in terms of qualitatively qualifying groups.

3. Based on the results of the evaluation of the staff deficit in terms of categories by years of the strategic period, it is possible to draw up a plan for providing them and not only to conduct their training and retraining in educational institutions, but also to carry out targeted career guidance in educational institutions, among residents, and to organize training and retraining of some categories of personnel.

4. It is necessary to pay attention to the radical restructuring of the work of personnel services in accordance with the requirements of a market economy and a specific personnel strategy. Personnel service employees should be selected in accordance with the established criteria for the availability of satisfactory knowledge, at least in such disciplines as personnel management, economics and production organization, psychology, sociology, law, pedagogy, skills in testing, computer work, etc.

5. The selection, placement and education of managers and specialists should be carried out with the obligatory observance of the following principles: to select personnel for business qualities (competence, professionalism, organizational abilities), moral and psychological and political qualities, on a democratic basis, with a combination of the experienced and the young workers, systematically to update and strengthen the cadres, to work with the personnel reserve.

6. It is necessary to radically change the existing career guidance work in the following areas: adaptation of traditional approaches to modern requirements and requirements of the new strategy; introduction of new and adequate and justified strategies, forms and methods of career guidance work; coordination of efforts of all possible subjects of professional orientation.

7. Improvement of the system of training and retraining of personnel, which should be based on the strategic needs of the organization, selecting applicants with the necessary qualifications, continuity and systematic skills. Today, there is a need to introduce an independent assessment (certification) of knowledge, practical skills and abilities of graduates of educational institutions, as well as workers who received them in the working process and require appropriate confirmation from independent certification services. In general, the system of vocational education and training should be open-minded and be capable of self-development on the basis of new principles oriented to the labor market, decentralization and social partnership.

8. Improvement of approaches, forms and methods of selection, placement and promotion of personnel in organization. Patriotism, professionalism, decency – in

such a sequence of principles, personnel selection should be carried out taking into account the requirements and conditions, including the consistent implementation of the research, organizational, managerial, political and legislative actions.

9. It is necessary to move on to career planning. The main criteria for this should be as follows: the length of employment, productive work in a certain position and positive results of attestations. It is necessary to create a new but not formal system of personnel certification. It is especially important to objectively evaluate the employee's performance and to make a decision based on the results of certification with moral and material encouragement of the best employees and the application of subsequent moral and material penalties for failure, or even the dismissal, to those individuals who do not meet the established requirements.

10. It is necessary to work out the appropriate system of work with the personnel reserve in accordance with the requirements of the enterprise strategy.

11. The HR strategy assumes more efficient placement of employees in the right positions within the organization and providing them with the opportunity to obtain higher earnings and to obtain shares, property or anything else of monetary value. This strategy is also related to the development of social infrastructure, the creation of comfortable working conditions and the healthy microclimate in organization, as well as the benevolent leadership style providing.

In particular, it is necessary to develop and implement a program for the decentralization of public-management relations in the following areas: "state and civil society", "government bodies and people", "state executive power and local government bodies", "the management representatives and the structural units of the company", "leader and subordinates" [1].

So, summing up the above, we can conclude that the personnel policy is imperfect and requires significant changes. This is certainly explained by the fact that in Ukraine the service in the local self-government bodies does not have the relevant experience and qualitative legislative framework. The mentality of our society, especially the representatives of the authorities, also requires significant changes, since in the state in which it exists now, it is impossible to be equal in this aspect to European countries. This mainly applies to corruption and the misuse of funds, which should be directed at the realization of the needs of citizens. Therefore, it is important to strengthen state control over the targeted use of state and local budget funds, as well as on the quality of services provided by local governments, realizing the interests of citizens of the region.

Due to the desire of qualified personnel to develop professionally, the development of the municipal representative bodies takes place. However, sometimes there are cases of use of their position by employees of representative bodies, which directly affects the inadequate and untimely performance of their immediate duties related to the needs of citizens of the region. Therefore, the following directions for the implementation of the state personnel policy in public administration should become priority (See Figure 1).

Consequently, raising the level of professionalism and stimulating officials of local governments is one of the most pressing issues that need to be addressed for the development of the state as a whole [2].

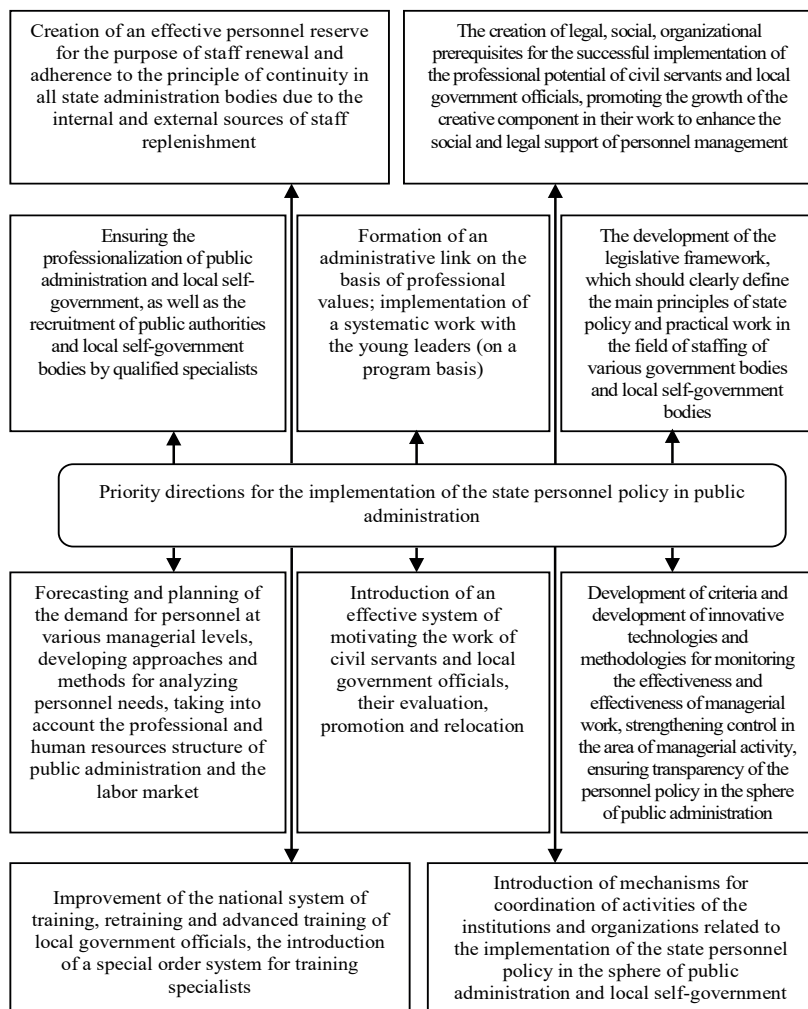


Fig. 1. Priority directions for the implementation of the state personnel policy in public administration [developed by author]

The solution of the problem of openness or publicity of the authorities is one of the key directions in the process of further adoption of democratic principles of state activity in Ukraine. Considering the question of possible directions for increasing the publicity of local government bodies, it is considered appropriate

to draw attention to the fact that access to information is a prerequisite for public control and the main element in the development of openness of the authorities.

The quality of the regulatory framework and free access of citizens to the information on the activities of public authorities are the main factors of their openness. Important factors of citizens' trust in public authorities and their cooperation are: openness of the activities of these bodies and direct communication of officials with different social groups of residents; not only informing the public about the results of their work, but also explaining, justifying and involving the public in discussing the activities of government bodies and solving public problems; efficiency, reliability of information and so on.

The ineffective interaction of local public authorities and the unwillingness to reach a compromise is due, first of all, to a conflict of personal interests. All this undermines the image of public authorities in the eyes of the public and the world. The public authorities, in our opinion, should cooperate and act in the legal field and find compromise solutions on all issues without exception, to achieve the well-being of the territorial community, which they administer.

The results of the analysis of the openness of the activities of the local governments, conducted by us in the framework of this study, indicate the need to develop a comprehensive program of actions and activities (See Figure 2).

Consequently, the solution of the problems of public authority in the information sphere will lead to such important consequences as:

- reducing the number of illegal decisions taken by the authorities through the promulgation of plans for the implementation of current tasks and general reports on the activities of public authorities;
- prevention of illegality and manifestations of corruption in the actions or inaction of officials of state authorities and local self-government bodies;
- increase the sense of justice of both representatives of government bodies and local self-government bodies, and the public as a whole by creating public and expert councils, commissions and other public entities;
- simplification of the availability of public information for ordinary citizens through the access to the Internet, namely to the created websites with systematically presented public information on the activities of government and local self-government bodies.

The openness of the authorities is a prerequisite for the development and strengthening of democracy, which will enhance mutual understanding and interaction between the authorities and the public, ensure the rights and freedoms of the individual and citizen, the development of society and the state, and integrate Ukraine into the global information space [3].

The strategy of the state personnel policy of Ukraine determines the main directions of personnel reforms in all spheres of public life, an important place among which is assigned to the sphere of state administration and local self-government bodies, since the competitiveness of the state and sustainable social

and economic development depend on the professionalism of personnel potential.



Fig. 2. The proposed comprehensive program of actions and activities of local self-government bodies [developed by author]

Thus, the openness of power, in particular its information aspect, is an important factor in the development of the processes of democratization of the state and society, the formation of civil society, and the guarantee of the establishment in Ukraine of democratic norms and rules of relations between citizens, their associations and state authorities. Transformation of the power system in Ukraine from the Soviet one to an independent sovereign and law-based state requires the introduction of new standards, the emergence of a new culture of relations between power and society. At the same time, it is extremely important to move from a system of power with a very high degree of closeness to the power, open to everyone. The openness of the state power, its ability and readiness for the dialogue with various social forces largely determine the domestic political situation in the country and strongly

influence the consolidation of democracy.

In the course of this study, we identified the main trends in the introduction of e-government in the joint territorial communities. As a result, it was revealed that a significant number of websites of local government bodies do not have any electronic service at all. Moreover, 40% of the websites of the united territorial communities do not have the electronic petitions service, which violate the legislation of Ukraine. In particular, there is a tendency of disinterestedness of newly formed bodies of local self-government to introduce e-technologies. The vast majority of web-sites are the same type and do not contain comprehensive information for the residents of joint territorial communities.

Since the Cabinet of Ministers of Ukraine approved the “Concept of development of the e-governance in Ukraine”, the implementation of which is envisaged until 2020, local governments and public administration bodies should implement it in two years. However, there are no mechanisms for monitoring the joint territorial communities to implement e-government today. Therefore, its further introduction depends entirely on the staff potential of local councils and the needs of residents in obtaining services of this type.

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## **EVALUATION OF INFLUENCING FACTORS ON DEVELOPMENT OF ENTERPRISES OF THE ENERGY SECTOR OF UKRAINE**

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Energy companies are the basis for the development of the economy; therefore, the growth of generating capacity is a condition for the stability of the industry. In general, macro- and mezzanine factors influence the activity of energy companies. Most Ukrainian industry enterprises perceive macro-level factors as indirect effects on activities that are impossible to manage. Energy companies, unlike others, are active participants in macroeconomic processes. Taking into account that Ukraine provides various types of energy services in the European direction, any changes in these markets will have a direct impact on Ukrainian energy companies.

The global energy market is characterized by an increase in uncertainty: instability of energy prices, geopolitical conflicts in major countries, energy exporters and transmitters require revision of energy strategies for most energy consumers of the world market. Priority issues in the global energy market are: energy efficiency, renewable energy, energy subsidies, the growth economies of China and India and imports decline Europe and the United States. Growth in demand for coal and natural gas will continue to affect the energy market. The energy systems of different geographical areas are becoming more interconnected, automated, modernized and are characterized by the availability of information about possible new risks that will occur in the future [1; 2; 3; 5].

Indicators of the mezzanine of the external environment of influence – that is, industry specificity – are the resource indicators for the energy companies (extraction, import, export, consumption) and expenditures of the state budget (by types of classification, Table 1). Hypothesis formed us about the impact of the meso level indicators on the activities of energy companies is as follows: lack of predictability basic industrial parameters indicates the absence of coordination mechanisms between government and energy companies, to which in turn indicates high energy intensity of GDP.

Table 1

**Results of the assessment of the impact of indicators meso level 1991-2015**

Type of energy resource	Measurement by meso level	
	Imports 1991-2015	Energy intensity of GDP
Coal	$y = -756064x + 5E+07; R^2 = 0,0764$	$y = -0,0525x + 0,9014; R^2 = 0,3447$
Oil	$y = -547877x + 3E+07; R^2 = 0,0565$	Export of electricity $y = -78,109x + 679,41; R^2 = 0,4913$
Gas	$y = -2E+06x + 1E+08; R^2 = 0,782$	
Uran	$y = 34,839x + 3521,9; R^2 = 0,1733$	
Type of energy resource	Measurement by meso level	
	Production:	Consumption:
Coal	$y = -1E+06x + 9E+07; R^2 = 0,4283$	$y = -756064x + 5E+07; R^2 = 0,0764$
Oil	$y = -83748x + 6E+06; R^2 = 0,3383$	$y = -547877x + 3E+07; R^2 = 0,0565$
Gas	$y = 214518x + 2E+07; R^2 = 0,3801$	$y = -2E+06x + 1E+08; R^2 = 0,782$
Uran	$y = 13,371x + 965,56; R^2 = 0,4464$	$y = 34,839x + 3521,9; R^2 = 0,1733$

*Source: calculated by the author based on data [5]*

Thus, indicators for the production of energy resources are unpredictable, which identifies the financial and production crisis of extractive enterprises and the instability of the energy system – the dependence on the import of energy resources. Indicators of import of energy resources are unpredictable, except for gas whose consumption is predicted. The average level of instability, in our opinion, is inherent in the export of electricity: the author analyzed the statistical data from 2008-2016, the determination coefficient  $R^2=0,4913$ . The peculiarity of Ukrainian non-state energy companies is precisely the realization of generation and sale of electricity to the final consumer, including abroad. Identification of the indicator as a predictable one influences the formation of energy business development strategies and requires the use of fuzzy logic methods that will enable the formation of strategic initiatives based on stochastic scenarios.

The energy intensity of GDP is an effective indicator, since determining the level of predictability of this indicator once again confirms the hypothesis that there is no targeted energy sector development program, which in turn causes imbalances

in enterprises, because, based on international experience of strategic management, energy companies have to shape their development programs in accordance with the overall energy strategy of the country and the implementation of certain stages in the relevant report energy agencies.

The analysis of environmental factors influencing the meso of the level of resource direction made it possible to detect significant differentiation on the objects of analysis. The dynamics of most indicators is unpredictable, which makes the energy sector investment-friendly to international investors and is a critical factor in meeting international energy obligations.

The next group of meso-level indicators is energy sector spending, which accounts for 6.2% of total expenditures in 2015. Hypothesis: Expenditures for energy companies are a tool to support their development; reducing funding for this form of the economic crisis in the country lead to update the current development strategy based on the modification of existing methods of strategic management.

The share of expenditures for the energy sector in total expenditures is an unstable factor of the meso level ( $y = -0,0029x + 0,105$ ;)  $R^2 = 0,3125$  [6; 7].

Expense items: coal sector and Naftogaz. Total support for the coal sector from 2009-2015 amounted to UAH 62 billion, while direct payments to Naftogaz and subventions to local budgets amounted to UAH 45.6 billion. At the same time, the issue of domestic government bonds (T-bills) totaling UAH 136.3 billion. over the past six years, Naftogaz's deficit has affected the volume of external debt.

Subsidization of communal services is a predicted indicator, expenditures since 2009 – UAH 18.0 billion. increased to 43.0 billion UAH. in 2016, which is 1.5% of GDP, is a negative factor of influence, since it does not stimulate preferential categories for the introduction of energy saving technologies and reduces the competitiveness of the economy due to increased funding. Also, the indicator indicates reserves for additional funds as compensation for the difference in price.

Since public spending in the energy sector are carried out in such forms as subsidies, tax exemptions, government guarantees and debt relief and penalties appropriate to consider every form of more (Table. 2).

Expenditures for energy companies are provided from the state budget, and they are factors of predicted influence.

However, given the persistent budget deficit and the attraction of funding from the International Monetary Fund, it is advisable to formulate several development scenarios in strategic management in order to diversify the risks of public financing.

In general, 90% of all compensations are compensation for the distribution of electricity to the population. In the new version of the Energy Strategy, the abolition of cross-subsidization is planned in 2019.

Thus, the implementation of energy subsidy reform is an important part of the Energy Strategy. However, reducing spending on the energy sector does not mean a successful reform.

Table. 2

**Factors affecting the meso level: reimbursement to energy companies in 2009-2015**

Compensation for losses	2009–2015 years
Amount of compensation for losses from delivery to e / e population and settlements	$y = 4E+06x + 1E+07, R^2 = 0,9836$
The amount of compensation for losses from the supply of e / e to consumers, which is calculated for the differential. tariffs	$y = 122809x + 1E+06, R^2 = 0,4441$
The amount of compensation for losses from the supply of e / e to domestic consumers, which are calculated for dif. tariffs	$y = 11922x + 3114,7, R^2 = 0,9425$
The amount of compensation for losses from the supply of e / e, which is used for the external illumination of settlements	$y = 45083x + 107834, R^2 = 0,9755$
The amount of compensation for losses from the supply of electric e-city electric transport	$y = 71953x + 302667, R^2 = 0,977$
The amount of compensation for losses from the supply of e / e coal-mining enterprises	$y = -82352x + 688217, R^2 = 0,705$
The amount of compensation for losses from the supply of electric and electronic equipment to mining, metallurgical and chemical enterprises	$y = -124760x + 711978, R^2 = 0,4831$
The amount of compensation for losses from the implementation of the supply of e / e for economic entities that implement innovative projects.	$y = -289,71x + 21096, R^2 = 0,0004$
The amount of compensation for losses from the implementation of electricity supply to the citizens of Svitlodarsk	$y = 17,714x - 29,714, R^2 = 0,2324$
Total:	$y = 4E+06x + 1E+07, R^2 = 0,9826$

*Source: Calculated by the author based on data [8; 9]*

Tax privileges for energy companies are among the largest in the industry as a whole. The benefits relate to corporate income tax, energy companies account for a significant share of tax incentives – 2% in aggregate, although there is a tendency to decrease volumes in 2013; yes, in 2014 the size of the benefits was 45 thousand dollars. Tax Code provides for the elimination of benefits for income tax until 2019, so businesses need to change the existing industry development strategy to compete and optimize sources of the income.

Impact factors - tax breaks by species - are unpredictable indicators. The reason for allocating them as a factor for the influence of the meso level was to consider the policy of governments, which is changing every 5 years, and to ensure the adoption of appropriate legislative acts in order to lobby for its own interests (Table 3).

Table 3

**Factors affecting the meso level: tax incentives 2011-2014**

Tax incentives	2011–2014 pp.
Income tax	$y = -268,13x + 2034,6$ , $R^2 = 0,4282$
VAT	$y = -330,72x + 1346,3$ , $R^2 = 0,3797$
Excise tax	$y = 685,49x - 72,22$ , $R^2 = 0,6847$
Total for the fuel and energy sector with , Income tax UAH million	$y = 0,1099x + 0,4$ , $R^2 = 0,2256$
Total privileges in the country, UAH million	$y = -6,214x + 54,374$ , $R^2 = 0,3163$

*Source. Calculated by the author based on data [8, c. 26, 43; 9; 10]*

The identification of the factors of the influence of the meso level gives an opportunity to form the tendencies of development of enterprises of the energy sector in the context of development opportunities. Possibilities of influence of factors of meso level:

1. Participation in the Extractive Industries Transparency Initiative (EITI) in order to increase investment attractiveness.
2. Modernization of gas and electricity networks as a profit segment of the market.
3. Introduction of the Smart Grid to diversify the markets for the ENTSO-E market.
4. Priority of atomic generation: scientific and technological potential, energy security.
5. Additional factor of investment attractiveness of power enterprises – state guarantees.
6. Economic security of energy enterprises at the expense of subsidies, tax breaks, debt write-offs and penalties.
7. Investment attractiveness of renewable energy through the renewal of the «green tariff» (September 2016).
8. Integration of stock procurement mechanisms in energy based on Uptime Institute Data Center Site Infrastructure Standard by TIER III.
9. Creation of bank crediting programs for energy projects of industrial and household character: «Ukragazbank», «Oschadbank».
10. Completion of the implementation of the provisions of the «third energy package» of the EU Directives in the practice of functioning of the energy markets in 2016.

As a result of the study, it was established that Ukraine's energy sector requires the development of a European development strategy that would respond to changes in the globalized world and promote the updating of internal mechanisms of functioning.

The main prerequisites for the formation of the target model of energy development:

- determination of the justified socio-economic and environmental priorities of meeting the energy needs of Ukraine;
- development of the target forecasting energy balance and its constant updating on the basis of changes in international priorities in the energy sector and in the country as a whole. It should be institutionalized as a methodology for strategic management of economic development in Ukraine and the energy sector in general;
- preliminary or current definition of strategic guidelines on the basis of ecologization of the economy for forming a consolidated scientifically-based vision on the long-term energy, ecological and economic future of Ukraine [11; 12].

In general, the evaluation results indicate the stochastic instability of the meso environment: the determination coefficient is within the range of 0.0004-0.4831 (Table 4). Instability environment requires managers use fundamental methodological support new strategic management that builds on the theory of fuzzy logic.

Adaptation of the appropriate methodological support for the management of the development of energy holdings will allow differentiating the level of risk by optimizing the financial and industrial components of holdings.

The instability of the mise environments indicates the lack of a comprehensive energy development strategy, imbalances in harmonizing the interests of stakeholders, unpredictability of tax rates, justification of market prices for energy products / services, extensive industry development, and ineffective state policies to stimulate and support energy companies and the public.

Task state power must meet the following conditions as the existing structure impact energy as sectors of the economy to other sectors of the economy, macroeconomic and financial performance; the impact of energy sector facilities on the ecological state; impact reliability and availability of energy resources in society in general.

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Table 4

**Estimation of the external environment of influence for energy companies**

Type of energy resource	Consumption	Production	Imports	Export
Coal	$R^2 = 0,0764$	$R^2 = 0,4283$	$R^2 = 0,076$	
Oil	$R^2 = 0,0565$	$R^2 = 0,3383$	$R^2 = 0,056$	
Gas	$R^2 = 0,782$	$R^2 = 0,3801$	$R^2 = 0,782$	
Others: nuclear	$R^2 = 0,1733$	$R^2 = 0,4464$	$R^2 = 0,1733$	$R^2 = 0,4913$
<i>Expenditures</i>				
Coal sector				$R^2 = 0,0076$
Coverage of Naftogaz's deficit				$R^2 = 0,0243$
Nuclear power engineering				$R^2 = 0,0687$
Social protection of Chernobyl				$R^2 = 0,0486$
Subsidization of utilities				$R^2 = 0,5325$
Special education and science				$R^2 = 0,0469$
Renewable energy sources and energy efficiency				$R^2 = 0,2095$
Other				$R^2 = 0,4102$
<i>The amount of compensation for losses from the supply of e / e</i>				
population and settlements				$R^2 = 0,9836$
for consumers who are calculated for dif. tariffs				$R^2 = 0,4441$
for household consumers, for diff. tariffs				$R^2 = 0,9425$
which is used for outdoor lighting of settlements				$R^2 = 0,9755$
urban electric transport				$R^2 = 0,977$
coal mining enterprises				$R^2 = 0,705$
mining and metallurgical and chemical enterprises				$R^2 = 0,4831$
for business entities: on innovations				$R^2 = 0,0004$
the population of Svetlodarsk				$R^2 = 0,2324$
Total Compensation Energy Sector				$R^2 = 0,9826$
<i>Tax privileges</i>				
Income tax				$R^2 = 0,4282$
VAT				$R^2 = 0,3797$
Excise tax				$R^2 = 0,6847$
Total for the fuel and energy sector with PPP, mln.UAH				$R^2 = 0,2256$
Total privileges in the country, mln.UAH				$R^2 = 0,3163$

*Source: compiled by the author based on the results of the analytical study*

projected indicators of meso-environments
unpredicted meso-environmental indicators

However, the achievement of such a level of development of the energy system in the conditions of systematic failure to implement the previous Energy Strategies is impossible. Implementation of the Energy Strategies of Ukraine, adopted in 2006 and 2013, is characterized by a low level of implementation of its main points in the economic activity of the country and the lack of achievement of strategic goals. Failure to comply with the main points of the strategy is an indicator of the existence of a management model that lobbies the interests of individual groups of influence in the short run to allocate funds for the implementation of their own «priority» projects. Such neglect of the long-term priorities of the development of the energy system has led to a critical situation in the energy sector as a whole, but it has created a problematic field of issues that we defined in the previous stages of the study. Also, one of the reasons for the ineffectiveness of the strategy's implementation is to focus on the stage of forecasting the development of the facility and the lack of forecasts for the implementation of their market actors. This situation indicates the lack of strategic approach in the development of the Energy Strategy and, in principle, an understanding of the delineation of the object and subject in general. Conflict of interest as a feature of market interaction is a feature and a key point in the formation of any strategy, in our case, the Energy. In our opinion, the main task of the state energy strategy should be the formation of a field of interaction that is attractive to all market participants, taking into account state interests, especially in the long-term perspective. In general, most of the environmental factors of the meso level are unstable, that is, taking into account their dynamics when drawing up long-term plans for energy companies based on classical strategic management tools is impossible. The priority is further research is the identification of indicators of power plants to improve approaches to the study of strategic alternatives given the instability of the environment.

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## **CONCEPTUAL PROVISIONS FOR PROVIDING INNOVATIVE COMPANY MANAGEMENT**

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The current development stage of socio-demographic processes in Ukraine, the restoration of the lost research and scientific-and-technical potential requires adequate provision of management of the innovative component of the enterprise. Mentioned processes are accelerated also by the information revolution, which

leads to avalanche-like innovations and the complication of the very essence of the labor process.

At the same time, the current complicated situation in the field of innovation work in Ukraine causes the need for further development and deepening of research in this direction. The state of providing innovation activity and innovation work, the definition of its new context in modern conditions as whole entity in modern conditions requires a comprehensive system approach, which is still absent.

Different aspects of the interpretation of the essence and content of such categories as “organizational and economic provision”, “organizational and economic mechanism” and “system of organizational and economic provision”, taking into account their peculiarities and differences, are highlighted in the works of such foreign and Ukrainian scholars: Simenko I.V., Voloshchuk L.O., Kirsanova V.V., Filyppova S.V., Kovtunencko K.K., Trofymchuk V.O. [1-4]. Thus, the generalization of theoretical approaches to the definition of the essence of categories of such categories as “organizational and economic provision”, “organizational and economic mechanism” and “system of organizational and economic provision”, was carried out by Shevchenko V.A. in [5]. However, the author does not determine the differences between the essence of these categories. In [2] Voloshchuk L. O., Kirsanova V.V., Filyppova S.V. reasonably defined the content of the concepts of such categories as “organizational and economic provision”, “organizational and economic mechanism” and “system of organizational and economic provision”. In addition to the following interpretations of the definitions, the authors emphasize that these categories should have their own peculiarities and content. Trofymchuk V.O. also distinguishes “organizational and economic provision” and “organizational and economic mechanism” categories. But the author, unfortunately, leaves out such category as “system of organizational and economic provision” [4]. However, there is still no single point of view regarding the content of these economic categories.

At the same time, theoretical and practical questions concerning the definition of the essence of provision of management of the innovative component of the enterprise in modern conditions remain inadequately developed, which makes it impossible to develop the corresponding instruments.

Therefore, the goal of the study is to substantiate the conceptual provisions of providing innovative company management.

To achieve the goal of the study, the following scientific objectives were identified:

- 1) to substantiate the conceptual provisions of providing innovative company management on the basis of the modern management paradigm;
- 2) to generalize theoretical positions regarding the essence of the concepts of the innovative component of the enterprise and “organizational and economic provision”;
- 3) to substantiate the instrumentarium of organizational and economic provision of providing innovative company management.

Table 1

**Morphological Analysis of “Organizational and Economic Provision”  
in the Works of Modern Scholars\***

No.	Author	Key Words
1	2	3
1	Svinarova H.B.	Its part is analytical support
2	Trofymchuk V.O.	The system of organizational, managerial, regulatory and methodical levers
3 4	Yakubenko Yu.L.	1. The main factors of production. 2. Measures
5	Dubravina L.I.	Sequence of cause and effect relationship
6	Matrosova L.M.	Principles, functions, tools, factors and instruments of management.
7 8 9	Voloshchuk L.O., Kirsanova V.V., Filyppova S.V.	1. System 2. Mechanism 3. The combination of management subsystems that perform the relevant functions and interact with each other ....
10 11 12 13 14 15	Melnykova M.V.	1. The complex of dynamic procedures, forms, methods and instruments. 2. Formation of organizational structure and organization of activities. 3. Improvement of organizational structure of management. 4. Systematization of approaches to the determination of patterns and methods of formation. 5. The complex of dynamic procedures, forms, methods and instruments. 6. Functioning of subsystems to create organizational and economic conditions.
16 17	Filyppova S.V., Kovtunenkov K.K.	1. Combines virtual and physical organizational mechanisms. 2. Innovation process in full: from development to commercialization.
18 19 20	The Great Encyclopedia of Oil and Gas	1. Development of organizational structure and management system. 2. One of the main components of the system basis. 3. The complex of economic parameters of management, methods of production organization.
21	Chernous Yu.O.	The complex of dynamic procedures, forms, methods and instruments of management.
22	Radionova N.Y.	Functioning of security subsystems to create organizational and economic conditions.
23	Shevchenko V.A.	A separate component of management, which is a process that involves the implementation of management functions in order to achieve the goals of enterprise development as a result of the use of its resources, and includes methodology, regulatory methods, goal-setting methods, resources and management procedures.
24	Shevchenko A.V.	Search and implementation of relevant levers, approaches and methods of modern organization of production at enterprises capable of increasing their innovative potential.
25	Simenko I.V.	1. The complex of organizational measures that ensure the functioning of subsystems. 2. Creation of all necessary conditions for efficient organization of analytical procedures.
26	Shkaraban S.I.	A system of measures aimed at obtaining information daily objective and sufficient for management.

\* Compiled by the author based on [1-6]

As there is no clear definition in the economic literature [1-6] in determining the content of organizational and economic provision of management of the innovative component of the enterprise, the following conceptual provisions of providing innovative company management were formulated:

First, most authors agree that an innovative component of an enterprise involves innovation and innovation work. Therefore, in developing the definition of organizational and economic provision, we will rely on this point of view.

Secondly, on the basis of the study of foreign and domestic views, presented in publications, the following results were obtained, which are summarized in Table 1.

Therefore, the analysis of the above definitions allowed to state that there are quite different approaches to the interpretation of organizational and economic provision, but most authors consider it based on such keyword as “the complex”. In the Great Encyclopedia, organizational and economic provision is also interpreted as “complex” (but with word collocations like “management parameters” and “methods of organization”), “a complex of economic parameters of management, methods of organization of production and labor” [11]. Chernous Yu. O. and Melnykova M.V. in [10,12] also define the organizational and economic provision as “complex”. They suppose that this is “the complex of dynamic procedures, forms, methods, instruments”. In work [4] Trofymchuk V.O. presents the content of the concept as a system of organizational, managerial, regulatory – legal and methodological levers of implementation. The Great Encyclopedia also uses such keyword as “system”. Dubravina L.I. in [4] states that organizational and economic provision as “Sequence of cause and effect relationship”, and Matrosova L.M. in [9] “as the development of certain principles, functions, tools, factors and instruments of management”. The Great Encyclopedia gives rather substantiated definition of organizational and economic provision as a “systemic basis” (“one of the main components of the systemic basis that characterizes the degree of organization of the object of management” ...) [11].

Melnikova M.V. in [10] considers the organizational and economic management from the four positions, as: 1. functioning of the subsystems to create organizational and economic conditions; 2. as a complex of dynamic procedures, forms, methods and instruments that allow to substantiate and make decisions; 3. improvement of organizational management structures; 4. systematization of approaches to the definition of patterns and methods of formation and development of organizational structures. It should be noted that the fourth position somewhat duplicates the third one. Radionova N.Y. and Melnykova M.V.[10,13], unlike other authors, interpret the function category as “the functioning of the security subsystem...”, and Voloshchuk L.O., Kirsanova V.V., Filyppova S.V. interpret as a combination of subsystems. Simenko I.V. also connects the category to the functioning of subsystems, but the author believes that this is “a complex of measures that ensure the functioning of subsystems.” Shevchenko V.A. [5] link organizational and economic provision to the process and emphasizes that this is a separate component of management.

According to the research carried out and the following definitions of the essence of “organizational and economic provision”, it should be noted that in practically all the above-mentioned explanations in various contexts, the keyword “methods” is also found.

Thus, Table 2 shows the comparison of keywords in defining the definition of “organizational and economic provision”.

On the basis of the analysis of the keywords of the definition of “organizational and economic provision” (Table 2), the following conclusions can be drawn: most often the researchers use the phrase (27% of the authors analyzed) “a complex of principles, forms, methods and instruments” and “system”. All other keywords are repeated almost in the same ratio.

Thirdly, on the basis of the above analysis of “organizational and economic provision” category we can note that: organizational provision involves the formation and improvement of organizational structures of management of innovative component of enterprises, and economic provision includes the development of norms, standards and incentives and other management instruments to achieve the set goal.

Fourthly, on the basis of our study of “organizational and economic provision of management of the innovative component of the enterprise” category, the definition was clarified. In general, the organizational and economic provision of management of the innovation component of the enterprise is a set of organizational and economic methods, processes and management instruments that are considered in the complex as a system for providing support and includes the development of functional subsystems for timely response to changes in the external and internal environment in order to increase efficiency of innovations management in accordance with the goals set.

Fifth, according to the analyzed approaches to the essence of “organizational and economic mechanism”, the following conclusions were made:

Since there is no clear definition in the category of “organizational and economic mechanism” in the economic literature [2,4,5,15 - 22], the approaches to the interpretation of organizational and economic mechanism were generalized. Initially, the concept of the mechanism was considered.

Fedorenko M.S., Fedulova L.I. [15] interpret the very mechanism of management as “a complex of techniques, methods, instruments of influence on the system”. According to the electronic resource, the management mechanism consists of “principles and tasks of management, methods, forms and instruments of management and organizational structure”.

Turylo A.A. [16] considers that the mechanism in general is “a tool that specifies, idealizes, objectively coordinates all elements and actions in the process of enterprise management.”

Shevchenko V.A. emphasizes that the mechanism is “a system, a complex of elements that interact with each other and form certain integrity” [5]. In the

electronic resource it is believed that the management mechanism includes the following components: principles and tasks of management, methods, forms and instruments of management, the organizational structure of enterprise management and its personnel, information and methods of its processing [17].

Table 2

**Comparison of Keywords of  
“Organizational and Economic Provision” Category**

No.	Author	Keywords
1	2	3
1	Trofymchuk V.O.	System (complex) of levers
2	Yakubenko Yu.L.	The main factors of production
3	Yakubenko Yu.L.	Measures
4	Dubravina L.I.	Sequence of cause and effect relationship
5	Matrosova L.M.	Principles, functions, tools, factors and management tools.
6	The Great Encyclopedia	Complex of economic factors
7	1.Melnykova M.V. 2.Chernous Yu.E. 3.The Great Encyclopedia 4. Matrosova L.M.	Complex of forms, methods and instruments
8	1. Melnykova M.V. 2.Radionova N.Y. 3.Voloshchuk L.O., Kirsanova V.V., Filyppova S.V.	Functioning of subsystems to create organizational and economic conditions (combination of subsystems)
9	Melnykova M.V.	Systematization of approaches to the determination of patterns and methods of formation
10	.1. Melnykova M.V. 2. The Great Encyclopedia	Formation of organizational structure
11	1. Filyppova S.V. Kovtunenکو K.K.	Combines virtual and physical organizational mechanisms.
12	1. Filyppova S.V. Kovtunenکو K.K.	Innovation process in full: from development to commercialization.
13	The Great Encyclopedia	One of the main components of the system basis
14	1. The Great Encyclopedia 2. Trofymchuk V.O. 3.Voloshchuk L.O., Kirsanova V.V., Filyppova S.V. 4.Shkaraban S.I.	System
15	Shevchenko V.A.	Component of the management, process
16	Voloshchuk L.O., Kirsanova V.V., Filyppova S.V.	Mechanism
17	Simenko I.V.	The complex of measures
18	Simenko I.V.	Creation of conditions

*\* Compiled by the author based on [1-6]*

Table 3

### Morphological Analysis of the Category of “Organizational and Economic Mechanism” in the Works of Modern Scientists\*

No.	Author	Keywords
1 2 3 4	Fedorenko M.S., Fedulova L.I.	1. The complex of techniques, methods, instruments of influence on the system (enterprise), 2. The complex of systemic relations 3. The comprehensive system, the effective functioning of which depends on the interconnectedness and coherence of all its subsystems, 4. Comprehensive system of general management of the enterprise as a set of actions, measures
5	Lysenko Yu.	System of forming goals and incentives
6	Astapova H.V.	System of elements of organizational and economic influence on the management process
7	Kozachenko A.V.	Principle approaches to organization of knowledge management in modern enterprises
8 9 10	Shevchenko V.A	1. System of organizational and economic measures aimed at increasing the efficiency of production 2. A complex of economic and organizational levers, methods, forms and instruments of management. 3. A complex of organizational and economic methods that influence on the management system
11	Ostashko T.O.	A complex of organizational forms that provide the formation, development and improvement of the production system
12	Chepurko V.V.	The result of the system of internal and external factors that affect the functioning and development of the enterprise
13 14	Holiev M.K.	1. The complex of economic factors (planning, monitoring, evaluation, activity stimulation, economic responsibility). 2. The complex of organizational, managerial and economic methods and levers of influence on the results.
15 16	Sukhorukova A.	1. A system consisting of a complex of interconnected items (elements of the system) subjected to the influence of external and internal factors. 2. Specific organizational, economic, technical and technological measures in their interconnection and interdependence.
17 18	Yermoshenko M.M., Hanushchak- Yefimenko L.M.	1. The mission, complex of principles, functions, methods, instruments, organizational structure. 2. The object and subject of influence, the goals, principles which should be laid in its basis, methods, functions, organizational structure and instruments.
19	Yokhna M.	"Structured entire" of elements and relationships
20 21	Electronic source	1. Complex of organizational and economic levers that affect the economic and organizational parameters of the enterprise management system 2. Complex system, consisting of systems of security, functional and target system, which contains a certain complex of organizational and economic levers.

22	Trofymchuk V.A.	The system of goals, incentives, functions, which consists of organizational and economic management levers.
23	Filyppova S.V., Kovtunencko K.K	Combines physical and virtual organizational mechanisms.
24	Trydid A.	Methods, principles, mission, stages
25	Briukhovetska I.	A system of forms, methods, and instruments of influence of the subject of management on the object of management to achieve the desired results.
26	Lenskyi E.	Notes the need to take into account legal regulations and emphasizes the organizational and legal side of the mechanism.
27	Ivanov S.V.	A system able to provide the necessary information for decision-making.
28 29 30	Turylo A.A.	1. A tool that specifies, idealizes, substantially coordinates all elements and actions in the process of enterprise management. 2. A special instrument. 3. Specific methodological and applied aspect of the formation and implementation of the management process
31	Voloshchuk L.O., Kirsanova V.V., Filyppova S.V.	As a complex of management functions, as a system of knowledge, as part of an economic mechanism or subsystem of management.

*\* Compiled by the author based on [ 2,4,5,15 - 21]*

Thus, the concept of “management mechanism” is defined by the authors as: a complex of technologies, methods, instruments; a complex of elements; as a tool; principles, tasks of management; system.

In contrast to the category of “organizational and economic provision”, most authors associate the definition of “organizational and economic mechanism” with such keyword as “system”.

For example, Holiev M.K. in [18] emphasizes that many scientists believe that the organizational and economic mechanism is “a complex of economic factors”. The author extends this definition as “a complex of organizational - managerial and economic methods and levers of influence on the result of the enterprise’s activities”.

Yermoshenko M.M., Hanushchak-Yefimenko L.M. in [19] interpret the function category as a set of principles, functions, methods, and instruments. Fedorenko M.S., Fedulova L.I. give a similar interpretation of this category. But the authors, besides the content of the identical definition of Yermoshenko M.M., Hanushchak-Yefimenko L.M., consider the concept also from the following positions: a complex of systemic relations; complex system; component of the system of general management of the enterprise.

Turylo A.A. [16] also gives some definitions of the category of “organizational and economic mechanism” as: 1) a tool; 2) a specific instrument; 3) a specific methodical and applied aspect.

In work [4] Trofymchuk V.O. represents the meaning of the concept as a system of organizational, managerial, regulatory – legal and methodological levers of the implementation. Such keyword as “system” is also used by other authors in works



[4,5,16,19] (for example, Sukhorukova A., Briukhovetska I., Yermoshenko M.M., Hanushchak-Yefimenko L. M.). In addition, some authors in [19,20] relate the organizational and economic mechanism of provision with a strategic context (for example, Trydid A., Yermoshenko M.M., Hanushchak-Yefimenko L.M. include in the interpretation of this definition the “mission” keyword).

According to the research carried out and given definitions of the essence of “organizational and economic mechanism” it should be noted that in practically all the above-mentioned explanations in different contexts the word “methods” is also found, as in “organizational and economic provision” category.

Thus, the generalization of the performed morphological research of this category is given in the form of Table 3 and Table 4.

On the basis of the analysis of the keywords of the definition of “organizational and economic mechanism” (Table 4), the following conclusions can be drawn: most often researchers use the “system” keyword (47% of the reviewed authors). The second most frequent use of word combination is “a complex of principles, forms, methods, instruments” (28% of the reviewed authors). In the third place (19%) is such word combination as “system (complex) of levers”. Compared with the analysis of keywords in the category of “organizational and economic provision”, the “system” and such word combination as “a complex of principles, forms, methods and instruments” are in the first place in the frequency of use of this definition.

Sixth, as a result of the generalization of the morphological analysis of the keywords of “system of organizational and economic provision” definition (Table 5), the following conclusions were made:

According to Shevchenko V.A. [5] the system of organizational and economic provision is formulated with subsystems of resource, legal, normative and methodical, scientific, informational, technical provision of enterprise management. Voloshchuk L. O., Kirsanova V.V., Filyppova S.V. consider [2, p.48] the system as “an independent integrated system, as a subsystem of management, or as a process”. Kireitsev H.H., Hudzynskyi O. D., Pakhomova T.M. combine the categories of “mechanism” and “system” [2]. Thus, the authors interpret this definition from different points of view.

Seventh, therefore, as a result of the generalization of current approaches to the definition of the essence of “organizational and economic provision” and “organizational and economic mechanism of provision” categories, we can conclude that there is lack of clarity in the formulation of these concepts in the economic literature and features and differences between them are not distinguished. Authors interpret these definitions almost as the same.

Table 4

**Comparison of Keywords in  
“Organizational and Economic Mechanism” Category\***

No.	Keywords	Author
1	System (complex) of levers	1. Trofymchuk V.O. 2. Holiev M.K. 3. Electronic source 4. Shevchenko V.A.
2	Measures	1. Sukhorukova A.
3	Complex of system relations	1. Fedorenko M.S., Fedulova L.I.
4	Complex of economic factors	1. Holiev M.K.
5	Complex of forms, methods, instruments	1. Holiev M.K. 2. Yermoshenko M.M. 3. Hanushchak-Yefimenko L.M. 4. Fedorenko M. S. 5. Fedulova L.I. 6. Shevchenko V.A. 7. Trydid A. 8. Electronic source.
6	General management system	1. Fedorenko M.S., Fedulova L.I.
7	Principle approaches to management organization	1. Kozachenko A.V.
8	Complex of organizational forms	1. Hrynko T.V.
9	Complex of organizational and economic methods	1. Shevchenko V.A.
10	Effect of the system	1. Chepurko V.V.
11	System	1. Briukhovetska I., 2. Sukhorukova A. 3. Yokhna M. 4. Hanushchak-Yefimenko L.M. 5. Electronic source 6. Fedorenko M.S., Fedulova L.I. 7. Lysenko Yu. 8. Shevchenko V.A. 9. Astapova H.V. 10. Voloshchuk L.O., Kirsanova V.V., Filyppova S.V.
12	Mission.....	1. Trydid A., 2. Yermoshenko M.M., Hanushchak-Yefimenko L.M.
13	Component of management, process	1. Shevchenko V.A.
14	Compliance with legal regulations	1. Lenskyi E.
15	A tool	1. Turylo A.A.
16	Specific methodical and applied aspect	1. Turylo A.A.
17	Specific instrument	1. Turylo A.A.
18	Management subsystem	1. Voloshchuk L.O., Kirsanova V.V., Filyppova S.V.
19	Complex of functions	1. Voloshchuk L.O., Kirsanova V.V., Filyppova S.V.

*Compiled by the author based on [2,4,5,15 - 21]*

Table 5

**Morphological Analysis of the Category of “System of Organizational and Economic Provision” in the Works of Modern Scientists\***

No.	Author	Keywords
1	Shevchenko V.A.	It is formed out of resource, legal, normative and methodical, scientific, information, technical provision of the enterprise management.
2	Voloshchuk L.O., Kirsanova V.V., Filyppova S.V.	1. Individually integrated system, as a subsystem of management, or as a process. 2. It shows the main purpose of functioning and the need for system interaction between the components of management subsystems.
3	Electronic source	It consists of subsystems of legal, resource, normative and methodical, scientific, technical, and information provision of the enterprise management.
4	Simenko I.V.	Organized (integrated) complex of elements and their relations, forming a united entire for the general goal of its existence.
5	Fedulova V.H., Bezus P.I. (p.42)	Certain organization of relations of innovation of elements that are in a state of inextricable unity with the environment and show their integrity, entering into the necessary relations with it.
6	Voloshchuk L.O., Kirsanova V.V., Filyppova S.V.	The system is a mechanism. They combine two concepts: “system” and “mechanism”.

*Compiled by the author based on [1,2,5, 15,17]*

Voloshchuk L.O., Kirsanova V.V., Filyppova S.V. [2] emphasize that the provision, system and mechanism are “ensuring the management system for the adoption of sound and effective managerial decisions. In their view, all three categories of “have synonymous content”. Summarizing the morphological analysis of the definitions of “organizational and economic provision, “organizational and economic mechanism” and “system of organizational and economic provision” as a result of comparison of their keywords, it should be emphasized that these categories have practically the same keywords.

Voloshchuk L.O., Kirsanova V.V., Filyppova S.V. suppose that these terms should have their own peculiarities and different essence and content. The authors emphasize that any type of provision has “signs of the system: object, subject, elements, connections, in particular, reverse, boundaries and the environment” [2, p.48].

Therefore, differences of organizational and economic provision from the organizational and economic mechanism and the system of organizational and economic provision were defined. First, the concept of “organizational and economic provision” is much broader than “organizational and economic mechanism”. There is a mechanism inside the provision. Secondly, in terms of the system: the system approach is wider than the mechanism itself. Provision is wider than system and mechanism.

Conclusions. The proposed conceptual ideas for the management provision of

the innovative component of the enterprise contain the following scientific results: 1) the conceptual principles of construction of the organizational and economic mechanism are substantiated; 2) the theoretical positions regarding the categorical apparatus of the organizational and economic mechanism are agreed; 3) the components of organizational and economic provision and their interconnections in the system of the mechanism are substantiated; 4) a set of instruments for organizational and economic provision of management of the innovative component of the enterprise is defined.

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# MARKETING MANAGEMENT OF BUILDING ENTERPRISES

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Market interactions are generalizing, extending to all economic spheres and regions of the country; penetrate into all parts of the industrial-economic system of the state. Enterprise - a complex social-economic production system is the primary element of the country's production system. One of the significant characteristics of the enterprise as a production system, the binding condition for its functioning is the interrelation with the nearest market subject. Interaction between market subjects in the theory of marketing management consists of two parts: rivalry and cooperation, in line with two competing marketing paradigms - the conflict and the paradigm of relationships, reflected in the concept of modern marketing management, focused on the partnership approach.

Marketing is a management function that seeks to increase a target market, to build long-term relationships, to satisfy clients, to ensure the desired profitability, and to strengthen competitive advantage [Arditi, Polat and Makinde, 2008]. Although marketing in the industrial and service sector is a well-known discipline, in the construction industry it is still misunderstood. This is reflected by the little scientific research and literature produced on this topic [Yisa, Ndekugri, and Ambrose, 1995]. It is difficult to define the "product" in the construction industry; it is even more difficult to define its marketing [Preece, Moodley, Smith and Collar, 2003].

The paradigm of relations is reflected in the modern concept of marketing management, focused on the partnership approach. Most scientists believe that the concept of affiliate marketing management does not deny the concept of traditional management. The progressiveness of affiliate marketing management is asserted by the fact that products increasingly become standardized, and services are unified, leading to duplicate marketing decisions. Therefore, the only way to keep a consumer is to individualize relationships with him, which is possible on the basis of the development of long-term partner interaction. With the development of computer technologies that allow to personify a large number of consumers, it

became possible to apply a partnership approach for companies operating on the consumer market. In spite of the differences in these markets, there is a common thing, which unites them - relations between people arising from the exchange of values.

The association of market subjects in the process of modern management, scientists call differently: F. Kotler gives the name «marketing system of interaction» [Kotler, 1999], T. Krem introduces the term «union of mutual perfection» [Krem, 2003]. J. Gordon uses the concept of «chain of partnership relations» [Gordon, 2001]. T. Krem although uses the term «union of mutual perfection», but for its characteristics comes from the term «system». The scientist wrote: «The company is the object of the system, and the system is the environment for work and the platform for building relations» [Krem, 2003]. The phrase «chain of partnership relations» introduced by J. Gordon can be used to demonstrate the order of communication between market subjects. But this approach is more suitable for illustrating logistical connections. Within the framework of management, all construction industry enterprises are involved in the process of creating value, acting simultaneously and jointly as a single system of management of construction industry enterprises. The most successful is the concept of «marketing system of interaction,» used by F. Kotler. However, marketing is an integral part of modern management (marketing management), which determines the expediency of using the laconic concept of «management system».

The system of management of the enterprises of the building industry (SM) is an integral entity, representing the unity of naturally located elements that are in mutual communication. This definition can serve to understand the general nature of the management system of the construction industry. R. Acoff asserts that the management system satisfies three conditions: «... 1) the behavior of each element affects the behavior of the whole; 2) behavior of elements and their influence on the whole interdependent; 3) the elements of the system are connected in such a way that the formation of independent subgroups is impossible» [Acoff, 2001]. «Significant properties of the system as a whole arise from interaction, and not from their actions separately from each other» [Acoff, 2001]. This opinion is reinforced by T. Krem, who points out that «without active support of each part of the system, customers will be at risk and they may feel uncertainty that can put relations under attack» [Acoff, 2002]. Tourist service is the result of the activity of several construction industry enterprises, which is embodied in a concrete total value for the client. This leads to a large degree of interdependence between the enterprises in the construction industry, the need for consistency of market behavior and the formation of the process and structure of inter-organizational management. Formation of SM of construction industry enterprises involves the initiation of this process by the enterprise integrator, regardless of its place in the chain of creation of the value of the tourist service.

Every enterprise in the chain of creating the value of tourism services creates

some influence on the process of forming a management system, characterized by the degree of interest in cooperation. The analysis of the links between the elements of the SM gives a complete picture of the system and its properties. Not knowing the links between the elements, the positive ones, or the negative ones, and, finally, how strong these connections are, we do not actually know anything about the system as a whole. In addition to the indicators of direct and reverse impact (one-way indicators), it is possible to separate the two-way indicators, that is, the indicators of mutual relations that characterize the level of the partnership approach of both parties, characterized by mutual interest in cooperation and mutual support. Calculation of the indicator of mutual interest in the formation of SM construction industry companies is proposed to implement the formula 1:

$$L_{mi} = q_1 \cdot L_{min} + q_2 \cdot L_{mic} + q_3 \cdot L_{mip} + q_4 \cdot L_{mico}$$

where  $L_{mi}$  - is an indicator of mutual interest

$L_{min}$  - an indicator of mutual interest in cooperation in the interaction between the integrator and intermediaries;

$L_{mic}$  - an indicator of mutual interest in cooperation in the system of interaction of integrator with consumers;

$L_{mip}$  - an indicator of mutual interest in cooperation in the system of interaction between the integrator and suppliers;

$L_{mico}$  - an indicator of mutual interest in cooperation in the system of interaction between the integrator and competitors;

$q_1, q_2, q_3, q_4$  - indicators of the significance of the corresponding systems.

According to a similar approach, the indicator of mutual support of SM of construction industry enterprises is calculated. Indicators of mutual interest and mutual support are single indicators of a complex indicator (indicator of partnership relations). The indicator of partner relations is proposed to calculate as the average arithmetic indicators of mutual interest in cooperation and mutual support of market actors (formula 2):

$$C_{lpt} = \frac{L_{mi} + L_{ms}}{2},$$

where  $C_{lpt}$  – complex indicator of partnership relations in the micro-enterprise SM-enterprise;

$L_{mi}$  – Indicator of mutual interest in cooperation of market actors;

$L_{ms}$  – an indicator of mutual support between subjects of the micro-environment.

In addition to the external microenvironment, the process of SM formation is also influenced by the internal environment, which is a subsystem of SM of construction industry enterprises. The internal environment of enterprises, as well as the external is characterized by competition, which in case of certain efforts can



be transformed into co-operation. Ukrainian scientist J. Poplavskaia writes: «If the divisions of a certain enterprise do not co-operate with each other ... then in each of them the determination to succeed is its own substructure. As a result, mental encapsulation (separation) from other organizational groups of the enterprise very quickly arises, and a certain «selfish zone» is formed [Poplavskaia, 2001]. In the process of formation of SM of construction industry enterprises, the horizontal integration of functional services of enterprises - entities of SM, that is, inter-firm marketing management, becomes of particular importance.

Complex indicators of the influence of the internal environment of enterprises on the process of forming SM enterprises in the construction industry are calculated by the formula 3:

$$CL_{iej} = \sum_{i=1}^n m_i \cdot k_{ij}$$

where  $CL_{iej}$  – a complex indicator of the influence of the internal environment of the j-th enterprise on the formation of SM construction industry enterprises;

$m_i$  – coefficient of weight of each of the structural divisions of the enterprise for the formation of SM of construction industry enterprises;

$k_{ij}$  – an estimation of the one-off indicator characterizing the influence of a certain structural unit of the j-th enterprise on the process of formation of SM of enterprises of the building industry;

n - the number of structural subdivisions of the enterprise being evaluated.

The calculation of the integral indicator of the influence of enterprises on the process of forming a system of management of enterprises in the construction industry is carried out according to the formula 4:

$$IL_{vs} = m \cdot CL_{iej}$$

where  $IL_{vs}$  – an integral indicator of the impact of enterprises on the formation of SM;

$CL_{iej}$  – a complex indicator of the influence of the j-th enterprise on the formation of SM construction industry enterprises;

m – the importance of each of the enterprises in the process of SM formation in the construction industry;

n – the number of enterprises participating in the process of forming SM of construction industry enterprises.

PEST-factors play an important role in the process of forming SM companies in the construction industry. If an enterprise-integrator seeks to optimally combine SM elements, then the scope of management control can be expanded, making the company take a more advantageous place in the market environment. Acting on the market, as a single system, representing a more significant market power

than the capabilities of a single enterprise, SM industry actors can more or less resist, and in some cases even affect some PEST factors. In order to characterize the general influence of PEST - factors on the process of forming SM companies in the construction industry, it is necessary to calculate the complex indicator of KP PEST:

$$CL\ PEST = \sum m_i \cdot P_i$$

where CL PEST is a complex indicator of PEST influence – factors on the process of SM formation in the construction industry;

$m_i$  – coefficient of significance of the factor of the macro environment for the process of formation SM of construction industry enterprises;

$P_i$  is an indicator of the influence of the  $i$ -th factor of the macro-environment for the formation of SM enterprises in the construction industry.

Determination of the proposed indicators allows us to make a conclusion about the impact of the environment on the process of formation of SM construction industry enterprises.

P. Cheverton uses the concept of a «strategic supplier,» and writes: «... the definition of a strategic supplier ... means such a supplier who has been able to exert a positive influence on the very essence of the business of his client» [Cheverton, 2004]. Ukrainian scientist Y. Deineka writes that the essence of modern restructuring «... consists not only in the change of internal organizational processes, but in changing the interaction with suppliers, consumers, intermediaries, etc.» [Deineka, 2005]. The restructuring of the existing system of relationships is realized through an optimal combination of outsourcing and outsourcing strategies. J. Haywood considers outsourcing as an action «to transfer the internal unit or units of the enterprise and all its associated assets into the organization of the supplier ...» [Haywood, 2002].

The market for construction goods is expedient to consider as a network of entrepreneurs of the construction industry, which relate to various sectors of the economy. These enterprises work closely together and create sustainable systems. The partnership approach fully corresponds to the specifics of the functioning of the construction industry and is an effective basis for the innovative component embodied in the process of forming an interorganizational management system. Factors influencing the process of forming a system of management of enterprises in the construction industry system from the structuring of the environment of the enterprise integrator of the management system of enterprises of the tourism industry. The proposed indicators of the environmental impact on the process of forming a management system are effective tools for innovation activities of construction industry enterprises, oriented to the inter-organizational concept of partnership relationships.

In the future, the development of diagnostics and identification of risks in the process of formation of the management system of enterprises of the building

industry, taking into account the orientation towards the conceptual principles of the partnership approach, is planned.

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## POTENTIAL IN EXTENDING VERTICAL NETWORK IN CHINESE MUSHROOM VERTICUM

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Literature review. Recently, as the development of economics, people pay more and more attention on their life quality. Mushroom, treated as one of the healthy food in the world, plays a key role in people's daily life, especially in China. China

has a long history of mushroom, and has the richest types of mushrooms. As the technology develops, China is the most important role in the world mushroom market.

A mushroom, or toadstool, is the fleshy, spore-bearing fruiting body of a fungus, typically produced above ground on soil or on its food source . Mushrooms are the highest dietary source for the unique sulfur-containing antioxidant ergothioneine (KALARAS, et al. (2017). There are many methods to storage mushrooms, however, drying is a common method of extending mushroom stem storage (Li-na, et al. 2017). There are also other methods to storage mushrooms, such as canned mushrooms, frozen mushrooms, etc. Unlike plants, mushrooms cannot synthesize their own food from the sun’s energy, mushrooms therefore had to develop special methods of living: symbiosis, saprophytism and parasitism. China has a very long history of mushroom, however, the artificial cultivation of mushroom started from 1970s with a history of more than 40 years. Now the output of Chinese mushrooms, which is almost 70% of the world total outputs, is the largest in the world. China is also one of the largest countries exporting mushrooms. However, there are still some problems which affect Chinese mushroom export. This paper wants to research on the problems of Chinese mushroom export and to give solutions to these problems.

Table 1

Research methodology in this paper

Research purpose	Research methodology
Data collection	Collection of secondary data
Data processing	Descriptive analysis
Problem solving	Gravity model, “RAIS” policy

Source: authors’ own compilation

Material and methods. Research methodology is essential to a research project or paper. Methodology is the systematic, theoretical analysis of the methods applied to a field of study.

Secondary data is relatively easy to get and to use, so it is important for researcher especially for the beginners. The use of secondary data, data that has been gathered for another purpose but may be suitable for research, is growing in relevance and importance in purchasing and supply management research. Ellram (2016) Though secondary data analyses of large data sets may reduce logistical and financial barriers required to perform significant and innovative work, such research requires specialized skills in data handling and statistical techniques as well as thorough and detailed knowledge of the data sources being used. Cole et. al. (2017) In order to research on the problems that Chinese mushroom sectors face when they are doing export, this paper uses a lot of secondary data.

Descriptive analysis is the best way to describe the changing tendency of data, and you can also use descriptive analysis to make some predictions. And a purely

descriptive approach is an evasion of social and political problems (Gee 2014). When describing the real situations of Chinese mushroom sector export, this paper uses descriptive analysis several times.

Gravity model is widely used in the international trade market, and this paper uses gravity model to solve the problems that Chinese mushroom sectors face. In order make sure that the problems can be solved, this paper gives a “RAIS” policy to guarantee.

The current situation of Chinese mushroom export. Mushroom export is decreasing.

*Table 2*

**The descriptive statistics of canned mushroom export in 2017**

Month	Quantity (ton)	Amount (Thousand dollars)	Quantity YOY (%)	Amount YOY (%)
1	20094	30,132	-6.6	-20.1
2	17238	26,097	10.5	8.9
3	25787	38,826	2.2	-5.8
4	19936	31,638	-6.9	-13.3
5	18248	30,992	-14.7	-23.7
6	18046	29,676	-2.2	-13.1

*Source: authors 'own compilation*

From table 3, we can see very clearly that it does not matter the quantity or the amount, mushroom export is decreasing compared with the same period last year. For instance, the quantity of January this year decreased 6.6% which 20094 tons compared with January last year. And the amount is decreasing even more because of the decreasing of export prices. For example, the amount of mushroom export in May this year is 30992 thousand us dollars, which is decreasing by 23.7% compared with May last year.

Mushroom price is decreasing. Figure 1 is telling us the tendency of mushroom price in recent month. The whole tendency of mushroom price is downward. From this we can make a prediction that the price of mushroom will be toward downside. Almost one month ago, mushroom price is still more than 10 yuan, but now mushroom price is around 7 yuan, which means that almost 30% of price has been reduced. This is really a big problem in Chinese mushroom market and this also effect Chinese mushroom export.

The reasons for current Chinese mushroom export situations. The figures in table 4 tell us a truth that the quantity of mushroom in the past 15 years has been increased double from 4.21 million tons to almost 10 million tons. As people realize the importance of mushroom in daily life, more and more mushroom research institutions and companies are set up in the world across all the countries. Although the demand for mushroom is increasing, but the supply of mushroom globally is increasing even faster than demand. That is recently, the price of Chinese mushroom

is decreasing and the export quantity and amount is also decreasing.

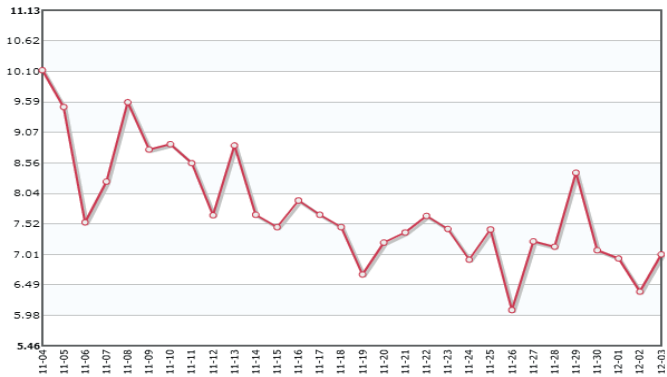


Fig. 1. Recent mushroom price (Chinese Yuan)  
Source: authors 'own compilation

Table 4

The descriptive statistics of global mushroom productivity

year	quantity(million tons)
2000	4.21
2001	4.53
2002	4.73
2003	4.91
2004	5.28
2005	5.29
2006	5.55
2007	5.99
2008	6.82
2009	7.21
2010	7.39
2011	8.43
2012	9.59
2013	9.93
2014	9.99

Source: authors 'own compilation

Gravity model of Chinese mushroom export. In the global market, gravity model is very famous. he gravity model of international trade in international economics, similar to other gravity models in social science, predicts bilateral trade flows based on the economic sizes (often using GDP measurements) and distance between two units. This model regards that there is a positive relation between trade amount and the economic quantity of two nations, and there is a negative relation between trade amount and the distance of two nations. The formula of gravity model is following.

$$F_{ij}=G\frac{M_i^{\partial_1}M_j^{\partial_2}}{D_{ij}^{\partial_3}}$$

$F_{ij}$  : product amount exported from i nation to j nation

$M_i$  : economic quantity of i nation (for instance GDP)

$M_j$  :economic quantity of j nation (for instance GDP)

$D_{ij}$  :distance between i nation and j nation

$G, \partial_1, \partial_2, \partial_3$  are constant

To evaluate the logarithm of both sides of formula 1, we can get a new formula

2.

$$LnF_{ij}=\partial_0+\partial_1M_i+\partial_2M_j-\partial_3D_{ij}+\varepsilon$$

$\partial_0, \partial_1, \partial_2, \partial_3$  are coefficients of regression, and  $\varepsilon$  is error term.

This paper introduces this model to talk about Chinese mushroom export. However, in order to reflect the real situation of Chinese mushroom export, we need explanatory variables and one explained variable. This paper uses the quantity and amount of Chinese mushroom export, the GDP and population of export-aim nation and the distance between two nations as explanatory variables, and uses mushroom export quantity as explained variable. All the detail can seen in the following table 5.

Table 5

The explanatory and explained variables		
1	Explained variable	Chinese mushroom export quantity
2	Explanatory variable	Chinese mushroom export amount
		Chinese GPD
		GDP of export-aim nation
		Distance between two nations

Source: authors 'own compilation

Now we use A country as a research sample to discuss the gravity model. We can get the data of Chinese mushroom export quantity and other data in Chinese statistical bureau website. And we can use SPSS to do linear regression analysis. The sample result is show in following table 6.

Table 6

**The sample linear regression results of Chinese mushroom export gravity model**

Variable	Coefficient	Std. Error	T-Statistic	Prob.
C	198.6261	10.65432	15.43216	0.0000
M <sub>i</sub>	56.76543	3.657431	15.76542	0.0000
M <sub>j</sub>	21.87346	3.875432	1.875654	0.0054
D <sub>ij</sub>	0.876951	0.087654	2.985735	0.0065
R-squared	0.871026	Mean dependent var		10.23542
Adjusted R-squared	0.862337	S.D. dependent var		1.107645
S.E. of regression	0.193501	Akaike info criterion		-0.123451
Sum squared resid	0.243761	Schwarz criterion		-0.214532
Log likelihood	6.010273	F-statistic		132.3345
Durbin-Watson stat	2.318734	Prob(F-statistic)		0.000001

*Source: authors 'own compilation*

We can get the regression formula from table 6. The formula is following.

$$\ln F_{ij} = 198.6261 + 56.76543M_i + 21.87346M_j - 0.876951D_{ij}$$

Summary. This paper gives a “RAIS” solution to solve the problems of Chinese mushroom export. RAIS means “Risk management”, “Adjustment”, “Innovation” and” Standard”. As shown in the following figure 2.

China should have a stronger risk management ability. In the international market, risk is exiting everywhere. Any country wants to get profit in international market should have enough ability to deal with the risk. Now for China and Chinese mushroom sectors, they will meet more risks and challenges from all the other nations in the world. All the risks include tangible and intangible risks. So China government should set up a early warning mechanism for mushroom sectors to avoid as many risks as possible.

China should adjust its mushroom industry. There are many types of mushrooms worldwide, so China should not export all types of mushrooms and it should focus on some important mushroom for China, for example, lucid ganoderma. Now days, in international market, quantity is not the key point to get revenue and profit, so China mushroom sectors should adjust from quantity to quality. Quality management of mushroom is becoming key point for Chinese mushroom sectors.





Fig. 2. “RAIS” development circle of Chinese mushroom export

*Source: authors' own compilation*

China should pay more attention to mushroom innovation. Innovation is very important for every company in the world. For Chinese mushroom sectors, they should pay more attention to innovation on the storage of mushroom, the types of products from mushroom. Even they can innovate in mushroom business model. China should build its own mushroom standards.

Now, in the mushroom industry, all the standards of mushroom are built by foreign countries. There are no Chinese mushroom standards. It is very important to build Chinese own mushroom standards to protect Chinese mushroom sectors' interests in the world mushroom market and mushroom competition.

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## **FUNCTIONAL FEATURES OF ORGANIZATIONAL AND MANAGERIAL MECHANISM IN THE FORMATION OF THE STRUCTURE OF MANAGEMENT OF ECONOMIC SECURITY OF THE ENTERPRISE**

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Economic security is increasing the interest of enterprises facing difficulties in implementing and organizing fundamentally new approaches to managing enterprises in market conditions.

According to S. Ilyashenko [5], under economic safety, the enterprise understands the state of effective use of its resources and existing market opportunities, which enable business entities to prevent internal and external threats, to ensure long-term survival and sustainable development in the market in accordance with the chosen mission. He highlights ten components: financial, market, interface, intellectual, personnel, technological, legal, environmental, information and power.

A. Soloviev highlights the following areas of formation of the concept of economic security of the enterprise: legal, organizational and managerial, information-analytical and technical [8].

Security as a result of management activities to eliminate threats has complex, plural objectivity: in one aspect it is the ability of the system to prevent causing possible harm to the interests of the individual, society and the state; in the other is the manifestation of the security of their interests, in the third - the manifestation of the security measures.

As one of the mandatory characteristics of the enterprise development, which ensures its positive direction and efficiency, we determine economic security, then

in the process of managing the safe development of the enterprise it is necessary to create and maintain a system of economic security - a complex continuous provision of favorable conditions for the enterprise and the target use its resources through the implementation of the security service (or the organization responsible for managing the safe development of the enterprise) in interaction together with other parts of the organizational, economic and legal measures to prevent and neutralize internal and external threats and risks.

Therefore, the system of economic security of an enterprise should be considered based on the basic system principles, which essentially differ in essence and content, which are disclosed in various works of domestic and foreign scientists.

Thus, Irochkin V.I. defines the security system as an organized set of special bodies, services, means, methods, measures that protect the vital interests of the individual, enterprise, state from internal and external threats [2, p. 9].

The system of economic security of an enterprise can not be the same for all. It is individual for each enterprise, because it depends on the level of development and structure of its production activities, the effectiveness of its use, personnel qualifications, the state of the environment, in particular the competitive environment, the riskiness of production.

Such authors Ivanyuta T. M., Zaichytsky A. O. [6, p. 21], Donets L.I., Vaschenko N.V. [3, p. 52] highlight some of the most important principles, which include: complexity or systemicity; priority of prevention measures; continuity; legality; planning; frugality; interaction; competence; the combination of publicity and confidentiality. Kamlik M. I. in addition to the above principles of the system of economic security of the enterprise, highlights the principle of planning and full control of the measures of the system of economic security to the management of the subject of entrepreneurial activity. In the opinion of A.L. Berlach, the principles on which the security system of the enterprise is being built are reflected in legally established principles, which can be conditionally divided into basic, that is, general and special. The basic principles of the author include: the legality of legal equality before the law of all entities security company; protection of interests of subjects of security; freedom to provide security to the company; systematic; continuity; mutual responsibility of the person; observance of the balance of vital interests of a person, society, state; observance of the rights and freedoms of individuals and legal entities; integration with international security systems [1, p. 26]. The above principles reflect the features of the principles on which the legal basis for the formation of the enterprise system, and not its economic security, should be based.

Summarizing the analysis of different points of view of authors, in relation to the above mentioned principles, we propose to specify them on the basic functioning of the management system within the concept of safe operation of the enterprise, namely: unconditional satisfaction of both the general needs of the enterprise and its workers; the flexibility of the structure of economic potential, ensuring its stable functioning in the present and safe activities in the future; constant threat

waiting; the ability of the management structure to quickly respond to threats and effectively use existing capabilities; effective information provision of processes of planning and use of enterprise strategies; awareness of society about the importance of creating favorable conditions for the implementation of enterprise measures to maintain their own economic security.

In this context, it is necessary to distinguish the main functional objectives of the enterprise's economic security: ensuring high financial efficiency of work, financial stability and independence of the enterprise; ensuring technological independence, achieving high competitiveness of the business entity; achievement of management efficiency, optimal organizational structure of enterprise management; minimizing the destructive effect of the results of industrial and economic activity on the state of the environment; high-quality legal protection of all aspects of the enterprise's activity; ensuring information field protection, commercial secrecy, achieving the necessary level of information support of all departments and departments of the organization; effective organization of the security of the company's personnel, its capital and property, as well as commercial interests.

Consequently, the system of economic security, in our opinion, serves as a result of the further development of management relations, the filling of their functions with a new extended content. It is at the junction of these functions that a new function of management arises - ensuring the safety of social and economic systems, which largely integrates in itself the certain development of the content of these functions. In this new function, apparently, the most pronounced is the anti-entropy nature of governance.

The level of development of the function as an element of the management mechanism is determined by the effectiveness of its implementation. In addition, it should be emphasized that the mechanism of creating economic security should be based on the internal system characteristics of the enterprise, that is, the socio-economic system itself should include «built-in» mechanisms for preventing external and internal threats.

By the source of the threat, the security of the enterprise can be divided into internal and external.

External threats in the field of entrepreneurship include: the work of special services of foreign states in obtaining information on economic processes in the field of entrepreneurship with the implementation of anticompetitive measures; the work of the security services of business entities, both domestic and foreign, suppressed by competitors, takeover of markets of sales or property of competitors; illegal activity of organized criminal groups and individuals in order to seize the property of business entities.

Internal threats to business security include: illegal or other negative actions of the personnel of the subject of entrepreneurial activities that threaten the functioning and development of entrepreneurship; violation of the established mode of protection of information with restricted access for third parties; violation of

the order of the use of technical means; other violations of the rules of the security regime, record keeping, etc., which create preconditions for the implementation of the illegal purposes of criminal elements or other interested persons; low level of personnel, organizational and legal, informational and analytical provision of management of potential risks both in the context of internal and external threats.

It should be noted that organizational and managerial mechanism of formation of the structure of economic security of the enterprise is a set of interrelated elements, which, using specific tools, based on certain principles, will ensure the prevention of negative consequences through the realization of its functions.

In the management of the system of economic security enterprises are implemented both traditional and special management functions. The traditional functions in managing the system of economic security of the enterprise include: forecasting; CONTROL; analysis; coordination; regulation; organization. The content of traditional functions in the management of the system of economic security and their implementation have particularities.

The starting data for forecasting are the results of the monitoring of the environment, the analysis of its results, the overall economic situation in the country. In forecasting, quantitative and qualitative indicators are used, and its result is the identification of trends (stable direction of the development of events), the formulation of a general description of situations in which the company may be, the probability of their formation, etc.

in the management system of economic security requires constant or periodic inspection of the state of economic security and the process of security and set the corresponding controlled parameters, namely partial - coefficient of financial independence, the share of employees on certain grounds (sex, education or work experience in the company) etc. To complex controlled parameters include the coefficient of overall solvency of an enterprise or the indicator of economic security of the enterprise.

The analysis of the management of the system of economic security of the enterprise simultaneously belongs both to the traditional and to the special functions and is carried out in a retrospective, at the current time and in the future. Prospective analysis intersects with forecasting - according to its results, data are generated for forecasting.

Coordination as a function of management of the system of economic security of the enterprise involves coordinating the actions of structural subdivisions and officials of the enterprise in ensuring economic security.

Regulation as a function of management of the system of economic security of the enterprise ensures the preservation of the processes of ensuring economic security, the implementation of actions and measures, the prevention of unwarranted deviations from the planned course of processes or the substantiation of the deviations of the correction of these processes.

The special functions in the management of the system of economic security

of the enterprise include the following: identification of threats to the economic security of the enterprise; ranking of threats to the economic security of the enterprise by various features (probability of implementation, consequences for the enterprise, etc.); assessment of the consequences of the implementation of threats; informational and analytical support for decision-making by the management of the organization [7, p.373].

Also, according to Zhivko Z.B. and Franchuk V.I. The company's economic security system performs two main functions: preventive and preventive and operative-informational.

The preventive-preventive function is aimed at implementing a set of interrelated measures for creating an environment that ensures the safe development of the enterprise and is realized through the implementation of general safety measures in daily work and provides: organizational and legal impact on the activities of the personnel and consumers of the enterprise through the development and implementation of safety standards ; selection, verification and control of personnel, development of effective personnel policies and programs for stimulating labor; protection of the enterprise: objects, money, material values, communications, equipment, goods, personnel; appraisal of premises, special equipment of some of them, registration of carriers of restricted information, protection of communications, organization of office and special case management; protection of information resources of restricted access; improvement of production technologies, introduction of protective elements in them; formation of a positive image of the enterprise; planning and providing the organization's activities in crisis situations [4; 9, p. 248].

The operational information function is implemented through the implementation of special security measures among which it is: the formation of information resources, the organization and conduct of competitive intelligence; informational and analytical provision of decision making by the management of the organization; development and implementation of measures to counteract not fair competition, including industrial espionage; information and analytical researches of clients, partners and competitors; measures of influence on unscrupulous clients, debtors and intruders to compensate the enterprise for losses incurred from their fault .... [9, p. 250].

Thus, the system of economic security of the enterprise and the mechanism of its provision provide for solving the problems of economic security at the expense of a specially created unit - the services of economic security, with the active participation of all departments and services of the enterprise within the responsibilities assigned to the heads of structural units of security problems.

Thus, the organizational and managerial mechanism directs its effect on the organization of interrelated work on the implementation of the functional responsibilities of staff to achieve the economic security of enterprises.

The structure of this unit depends on the level of establishment of the enterprise,

an array of issues, the solution of which entrusts this service to the management of the company at one or another stage of its development.

Under the economic security service of the enterprise, it should be understood - a specialized unit that is part of its organizational structure, whose activities are aimed at creating the proper level of economic security and neutralizing the main threats that can be expected in the enterprise in the process of its production and economic activity.

The set of specific tasks facing the security service of an enterprise determines a certain set of its functions as indicated in the normative documents defining the organization of their activities, identifies specific objects that are protected from potential threats and unlawful encroachments and are as follows:

- protection of legitimate rights and interests of business entities and their employees;
- data collection, analysis, evaluation and forecasting of the operational environment and various risks in the enterprise;
- studying and testing partners, customers and competitors;
- timely detection of possible encroachments on the object or its employees from sources of external security threats;
- prevention of penetration into the object of structures of industrial espionage, criminal formations or persons with unlawful intentions;
- counteracting technical penetration of an object or its communication systems;
- protection of the object's employees from violent attacks;
- detection, prevention of possible illegal or other negative activity of employees of the subject of entrepreneurship to the detriment of its safety;
- the preservation of material values, information with restricted access;
- search and obtaining the necessary information for making optimal managerial decisions on strategy and tactics of further entrepreneurial activity;
- physical and technical protection of buildings, structures, territories, vehicles;
- the formation in the mass media of partners and clients of a positive image of the subject of entrepreneurial activity, which should facilitate the implementation of business projects;

Compensation for material and moral damages caused by unlawful actions of legal entities or individuals;

organization and maintenance of the throughput and internal-object mode in premises; order of service; control over observance of the requirements of the regime by the personnel of the enterprise and partners (visitors);

Participation in the development of basic documents (statute, rules of internal regulations, contracts, etc.) in order to reflect the requirements of organization of security and protection (commercial secrets):

- development and implementation of measures to ensure the operation of documents containing information that is commercial secret, control over the implementation of the requirements of guidance materials;

- Identification and overlapping of possible channels of leakage of confidential information, accounting and analysis of violations of the security regime by employees of the enterprise, clients and competitors;
- organization and conduct of official investigations on the facts of disclosure or loss of documents, other violations of the security of the enterprise;
- development, updating and updating of the list of information constituting commercial secret, and other normative acts regulating the order of organization of security and information protection;
- ensuring strict compliance with the requirements of regulatory documents on the protection of commercial secrets;
- organization and regular training of employees of the enterprise and security services in all areas of protection of commercial secrets;
- keeping records of safes and metal cabinets, if they allow permanent or temporary storage of confidential documents, as well as accounting and protection of special premises and technical means;
- support for contacts with law enforcement agencies and security services of neighboring enterprises (organizations) in the interests of studying the criminal situation in the region;
- control over the effectiveness of the security system.

Starting points in the organization of the company's economic security service is that it must provide a comprehensive analysis of its internal and external environment, and at the same time it is an integral part of the internal environment of the enterprise, being an integral part of its organizational structure.

**Conclusions.** Taking into account the above, we can assert that the analysis of the enterprise's economic security system is based on the basic system principles, which essentially differ in essence and content, disclosed in various works of domestic and foreign scientists; the main functional goals of the company's economic security are stated; the source of the threats to the security of the enterprise is determined; The characteristic of traditional and special functions of management of the enterprise's economic security system is given. The content of the organizational and managerial mechanism of formation of the structure of economic security of the enterprise is specified.

The presented conclusions form the subject of further investigation of the enterprise's economic security service, optimize its composition with a clear division of powers and responsibilities of the personnel.

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## **FORMATION OF THE COST CENTERS FOR EFFICIENT MANAGEMENT OF AGRARIAN ENTERPRISES**

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Successful management of an agrarian enterprise can take place only if information is obtained that is necessary for state analysis, decision-making and control over implementation. Lack of information makes the leaders of the agrarian enterprises rely on intuition, increasing the risk of making the wrong decision.

The system and the quality of information for making managerial decisions primarily will depend on the cost accounting system. But modern accounting and control systems are aimed primarily at external users of information and do not include a management system that takes into account the needs of all business entities [15].

Decreasing the cost level is an important task, but not the main purpose of managing the costs of the enterprise. The process of reducing costs alone may be accompanied by a decrease in the quality of manufactured products and customer

service, a refusal to produce and sell products that are in demand, but do not require significant costs. The main purpose of managing the costs of agrarian enterprises is to increase the efficiency and competitiveness of its activities [10].

There is a continuous search for the most effective and rational methods and forms of cost management in the current conditions of formation of market relations. In the cost management system, an important place is occupied by the choice of the calculation method by which the business entity (agrarian enterprise) distributes costs, analyzes their effectiveness and determines the price policy.

The functioning of agrarian enterprises depends on changes in the external and internal environment, which causes these obstacles in the process of cost management. Most agrarian enterprises combine a number of such problems (Table 1).

*Table 1*

**Structuring of problems of cost management of agrarian enterprises**

Type of problem	Result
Technological	a significant proportion of obsolete and worn-out equipment, high capital intensity of the active part of fixed assets, incomplete utilization of production capacities.
Economic	there are inaccuracies in the calculation of the cost of resources, the absence of an analysis of the impact of indirect costs on financial results due to cost changes.
Account	the use of outdated methods of calculation of full cost of production by enterprises, the lack of interconnection of such functions as planning, analysis, accounting.
Managerial	lack of analysis of the existing organizational structure as an object of cost formation for optimization, low qualification level of employees.

The structuring proves the the fact of low level of management costs in agrarian enterprises. Therefore, in order to improve the situation, in particular, to increase the efficiency of operations and harmonization of production relations, it is necessary to improve the mechanism of cost management, including their formation and distribution, which will ensure high efficiency of economic activity, considerable dynamism of management, focus on strategic goals.

To solve problems with cost management, expediency centers become cost centers. Formation of which is carried out taking into account technological and organizational features of the agrarian enterprise. The cost centers are individual jobs, production operations that have similar characteristics, production capacity.

When forming a cost center it is advisable to take into account [4]:

1. Each created cost center, headed by a leader, should be a separate area of activity. It is created in accordance with the detailed scheme of organization of the agrarian enterprise and the list of official duties of employees. If necessary, it is advisable to make corrections to the job duties.

2. The cost center should combine the most similar working units, which determine the costs of the same nature. This allows you to determine the set of factors that affect the cost of this cost center and the choice of the distribution base of costs.

3. All costs must be charged to the cost centers. Costs in the process of their accounting are divided into regulated and unregulated. Provided that the head of the financial responsibility center has an impact on costs, then they are regulated if the costs are not subject to control, then they are not regulated [1].

The formation of cost centers contributes to:

- streamlining the cost structure;
- formation of a statement of the cost center;
- reduction of deviations of actual costs from normative;
- reduction of liability for costs incurred by specific officials and structural divisions.

The efficiency of the cost centers will depend on the content of the report, which will cover all controlled costs, grouping of reporting indicators as the rank-by-step climb (from the lower to the higher level of management), the inclusion of data that will enable the implementation of the management principle for the deviations.

The expediency of determining the cost center, from the lower level, of the individual performer, is justified by the fact that each performer is responsible for those costs, the size of which depends on him.

After creating the centers of cost of the first level, the centers of expenses of other levels (second, third, etc.) are established. Then, the cost centers of subsequent levels can be responsible for both the cost of their level and the cost of previous levels.

Accordingly, each cost center is responsible only for controlled costs. However, there is often a problem with partially controlled costs.

A cost estimate is drawn up for all cost centers that covers the costs that are controlled by the contractor or other responsible person for costs.

It is important to take into account the actual costs of all the centres for the organization of cost control. To do this, each cost center, as a rule, opens a separate analytical calculation of the cost of production, each center will assign a certain number (cost code) [5].

Direct costs are calculated according to the cost centers based on primary documents, which indicate cost cues. Indirectly characterized directly by this cost center or distributed from other centers.

All aspects of the cost management system are considered in the cost center in the following areas:

- cost planning;
- accounting and plan-fact control of expenses;
- adjustment of the cost formation process.

In turn, cost planning involves the development of cost classification, the

definition of resource cost limits (referring to the planned production volume and the need to support the optimal mode of operation of equipment, calculating the cost of costs relative to the planned cost of resources and the specified prices for them, the search for ways to save resources, creating a program of resource conservation , development of plan-cost estimates-cost planning.

Cost planning is done to reduce them. The main ways to reduce costs for improving the performance of agrarian enterprises are given in Table 2.

The next stage in cost planning is the development of norms and norms of spending resources, based on the planned tasks on agricultural production and the need for the normal functioning of technical equipment. At the same time, the emphasis should be on the binding of the standard or norm, namely, whether the cost of a resource per unit of output, per unit time of use of a resource, unit of conditional technological equipment [13].

*Table 2*

### **Ways to reduce costs**

Cost item	Ways to decrease
raw materials, materials	<ul style="list-style-type: none"> <li>-search for suppliers that take into account the cost of delivery in the amount of raw materials and materials;</li> <li>-search for suppliers providing free warranty repairs;</li> <li>-procurement from the factory;</li> <li>-preparation of preliminary estimates for the accuracy of calculations of this item of expenses.</li> </ul>
equipment operation	<ul style="list-style-type: none"> <li>- use of reverse leasing;</li> <li>- timely maintenance;</li> <li>-reduction of technological downtime;</li> <li>-minimization of expenses duringbreaks, rest;</li> <li>-sale or lease of unused equipment.</li> </ul>
electricity	<ul style="list-style-type: none"> <li>- use of energy saving lamps;</li> <li>- use of energy consumption sensors.</li> </ul>
staff	<ul style="list-style-type: none"> <li>- control of pay for idle time;</li> <li>- reduction of material aid payments, premiums from net profit;</li> <li>- reduction of salary taxes due to outsourcing.</li> </ul>
selling expenses	<ul style="list-style-type: none"> <li>- reduction of transportation costs due to logistics companies;</li> <li>- establishment of optimal tariff rates;</li> <li>- automation of sales of agricultural products;</li> <li>- close location of warehouses.</li> </ul>
administrative	<ul style="list-style-type: none"> <li>- reduction of representative expenses;</li> <li>- optimization of advertising costs;</li> <li>- reducing the cost of Internet and telephony by spending.</li> </ul>
general production	<ul style="list-style-type: none"> <li>- sale of products with terms of storage at reduced prices</li> <li>- reduced costs for intermediate storage.</li> </ul>

The calculation of the cost in the planned period becomes realistic, when on the

basis of the plan of production, the standards and norms of the cost of resources will receive data on the necessary resources. Therefore, using the directory of existing resource prices, it is possible to determine the cost estimate of planned costs.

However, the cost estimation that has not always been received does not always reflect the possibilities of the agrarian enterprise in the long-term development plan. Therefore, it is expedient to develop a resource-saving program. The principle of resource saving is to reduce losses in the process of technological operation or increase the efficiency of resource use.

When planning costs it is necessary to make estimates:

- on the basis of existing tasks for the production of agricultural products and accepted norms and norms;
- adjustment of the first estimate taking into account resource saving.

Taking into account the saving effect on project implementation, resource conservation should be encouraged by the authors of the program. When planning the costs, it is necessary to adjust their actual control - accounting and plan.

Operative cost accounting implies a homogeneous display in the departmental forms with the specified term of readiness of information. According to the structure, the accounting form should be consistent with the planned one. That is, the accounting form should provide a direct comparison of the actual achieved and planned indicators. This is based on the element of the cost management system – plan-fact control.

Plan-factual control is carried out in sections:

- natural indicators;
- cost indicators.

Consequently, the system of operative cost accounting should reflect the result of the deviation of the actual from the planned.

Corrected impact on cost formation includes goals that are under the supervision of the person who is responsible for cost management:

- correspondence between the actual costs of resources in accordance with planned regulatory costs;
- comparison of the schedule and the volumes of spending resources, respectively, changes in production and financial capacity;
- saving by reducing the cost of resources relative to regulatory costs without reducing the useful effect of costs.

The diagnosis of problems in the formation and control of costs in an agrarian enterprise is reduced to the definition of lack of efficiency of accounting, the lack of criteria for the effectiveness of production activities in the system of cost management, the functioning of a small system of motivation.

According to V. A. Zakharov «... the lack of operational accounting is that, for most enterprises, full data on actual costs in shops can be obtained from the accounting department one month after the reporting period. These data will be outdate at the time of their receipt. They do not allow to promptly analyze the

production processes in the shops and, accordingly, make decisions about the problems» [5].

The improvement of the cost management system is aimed at the constant search for reserves of resource savings, accounting, analysis, cost planning by their types, their valuation, motivation of resource conservation and reduction of costs to improve the efficiency of production and financial activities of agrarian enterprises.

Thus, the formation of a cost center for efficient management of agrarian enterprises will allow:

- use of new managerial decisions to reduce costs;
- reduction of expenses of planning and economic department;
- reduction of transportation costs;
- by standardizing the reduction of the complexity of work related to cost control;
- to control expenses from the place of their occurrence;
- optimization of settlement costs;
- reduction of the item of constant expenses;
- reduction of the cost of agricultural products in an agrarian enterprise.

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## **ENERGY MANAGEMENT AND ENERGY EFFICIENCY IN THE AGRARIAN SECTOR OF THE NATIONAL ECONOMY**

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The urgent problems that have arisen in the agrarian sector of the economy of Ukraine and are directly related to the effective use of energy resources can be solved only through the energy management as an important direction of scientific and practical activity. Therefore, in this context the key role is played by the category of “energy efficiency”.

reflects the ratio between the volume of production of agricultural products corresponding to the current quality standards and the amount of aggregate energy costs, provided that the requirements for environmental protection are met.

An energy-efficient agricultural enterprise is considered to be the organization of agricultural production, which is based on energy and resource-saving, clean and environment friendly technologies with the use of energy-efficient technical means.

In general, the energy saving potential of an agricultural enterprise is a set of potential opportunities for this enterprise to save energy, resources and funds necessary to realize these opportunities, taking into account the level of specific energy consumption in agriculture production.

The energy saving mechanism is a set of structures, norms, methods and means of the energy-saving process management, which are based on the rational consumption of energy resources. At the same time, the process of rational use of energy should be considered within the framework of the energy management system of the existing agricultural enterprise (See Figure 1).

Energy management in the agrarian sector is a process aimed at identifying and realizing the optimal costs of energy resources and rational ways to achieve them. The goal of rationalization of energy consumption must meet the following requirements: certainty, clarity, attainability, compliance with the requirements of the objective laws of economic development, as well as the compliance with higher-order objectives [6, p. 163-164].

In turn, energy saving management is a management system that ensures the activity of an enterprise, in which only the amount of fuel and energy needed for production is consumed [2, p. 7].

Energy management is the managerial and technical activity of the personnel of the management object aimed at the rational use of energy taking into account social, technical, economic and environmental aspects [4, p. 7]. The main goal of energy management is to provide efficient ways to implement the energy saving strategy of the enterprise [3, p. 8].

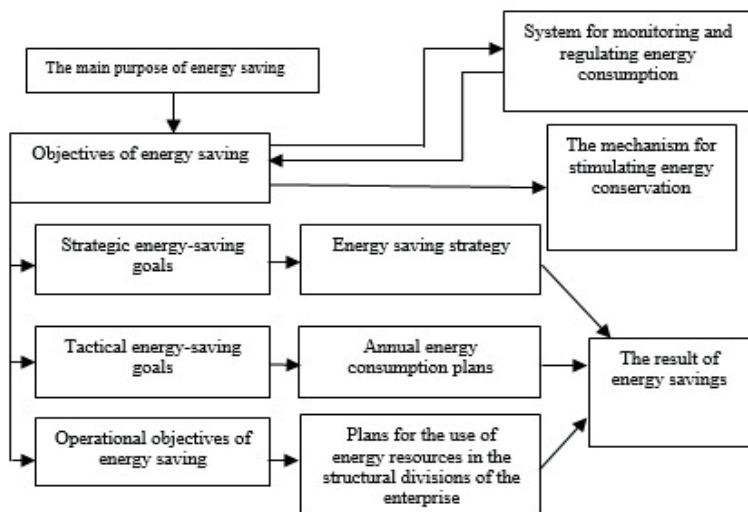


Fig. 1. Block diagram of energy management of the agricultural enterprise

*Source: developed by authors on the basis of the source: [6, c. 54]*

The energy management system is an integral part of the overall enterprise management system, which includes the organizational structure, management functions and responsibilities, procedures, processes and resources for the formation, implementation, and achieving of the energy conservation policy objectives and directions [2, p. 9]. From another point of view, the energy management system of an agricultural enterprise is a complex of organizational, technical tools and software that allow managing the production process in such a way that only the



minimum required amount of fuel and energy resources is consumed to produce a certain quantity of products or services [3, p. 13].

Energy management as a component of the organization's management should be interpreted as:

- the management actions aimed at ensuring the effective functioning of the energy system of the enterprise and the achievement of the goals set for it;
- the management of the processes of distribution and use of energy resources that are carried out within the framework of a particular organization and ensure the production of certain volumes of products or services;
- the adoption of management decisions and monitoring of their implementation, which ensure the effective use of energy resources.

Fundamental principles of management are the principles, which should serve as a guide to practical actions in this field, or a kind of hint for the top-management representatives of the enterprise about how to rationally influence the controlled system and what kind of reaction should be expected in response.

Therefore, energy management should be based on the relevant principles, which are as follows:

- the correspondence between the intended purpose of the power system and the level of its provision by various resources, including energy ones;
- the strong conformity of efficiency of the energy system, energy intensity and production efficiency as a whole;
- conformity of the size of the agricultural enterprise to the energy efficiency requirements;
- conformity of specialization and concentration to the conditions for effective implementation of the available energy potential;
- compliance of the implementation of the energy potential with the current socio-economic requirements [5, p. 90-91].

The main functions of energy management are the following ones:

- energy consumption planning – this function is considered to be a process of cognition of objective cause-effect relationships between energy and other factors of production in agriculture by modeling them (design) for a certain period of time [6, p. 95];
- the organization of energy consumption, which is the process of dividing, grouping and coordinating activities and resources to achieve the set goals for energy consumption and energy conservation;
- motivation of the energy consumption, which is related to the combination of internal and external driving forces that not only induce a person to energy-saving activities and determine the behavior and forms of activity, but also give it a focus, aimed at achieving the organizational goals for effective energy consumption;
- energy control (energy audit), which is used to control activity at the enterprise in order to ensure qualitative analysis and energy assessment of the functioning of the energy system [6, p.

114].

The tasks that are solved in the energy management system include:

- the definition of specific goals of energy consumption of the agricultural enterprise;
- the identification of the priorities of energy consumption and energy efficiency goals and the sequence of their solutions;
- the development of the energy strategy of the agrarian enterprise, as well as certain economic tasks and ways to solve them;
- the development of a system of measures to solve the problems related to energy consumption, which are planned for different periods of time;
- the determination of the necessary resources and sources of their coverage for the implementation of the energy strategy;
- the establishment of control over the fulfillment of assigned tasks.

It is necessary to distinguish three basic levels of decision-making process about the introduction of energy-saving measures in the sphere of agricultural production. First of all, it is the macroeconomic (general) level at which questions about the structural reorganization of the national economy are being addressed, and state standards for energy consumption are being formed. Secondly, this is the sectoral and regional level, where decisions should be made on the placement of a government contract (order) for agricultural products, taking into account the energy efficiency of its production. Thirdly, this is the microeconomic level (or the level of agrarian enterprises), where the decisions made at the higher structural levels of management are made concrete, and the energy-saving measures are directly implemented [1, p. 133].

First of all, decisions are made about the advisability of managing energy conservation in a certain area by means of software analysis methods, since the energy use processes in agriculture are quite complex due to the dependence of the final result of the energy system's impact on many factors (i.e., weather and climate conditions, type of energy facilities and technology of production of agricultural products). The output result of the functioning of the energy system can not be unambiguously interpreted, since it is necessary to maximize the yield of products from a unit of land area and minimize the specific energy costs. The separation of the energy system as a subsystem of field cropping or animal husbandry is difficult, since energy use processes are exclusively the processes of production of agricultural products (technological processes and operations). Therefore, their energy analysis is inseparable from the analysis of these processes, that is, the energy system as a whole should be analyzed.

In general, the process of software analysis of energy consumption consists of several stages.

At the first stage specific problems should be formulated. The problem is difficult to formulate without defining the boundaries of the study. Thus, when studying the problem of providing agriculture with energy resources, it is necessary to find out

the state of oil, gas, coal production and processing in the state (region), electricity production and conjuncture in the world energy market. [1, p. 134].

At the second stage, the program objectives, indicators of its achievement and target groups of energy consumers are determined. The purpose of the energy saving program can be formulated as a result of energy consumption, which should be maximized (for example, achieving maximum energy output), or undesirable effect, the effect of which should be minimized (for instance, avoidance of cost overruns of energy resources). Entire programs should be formulated numerically, and implementation time should be specified. Indicators for the achievement of program objectives should provide a quantitative measurement of the goals.

An integral part of this stage is the study of the aggregate of energy consumers, their division into groups depending on sex, age, place of residence (work), social status, land use size and livestock, which ultimately contributes to improving the analysis and validity of management decisions.

At the third stage alternative energy conservation options should be considered. It is important to consider that a significant number of them make calculations and choice rather difficult, and a small number of energy saving options, on the contrary, reduces the validity of the choice.

The fourth stage is related to the definition of costs. In this case, all elements of alternatives are estimated in specific values, as well as the volume of capital investments and current costs for each of the alternatives are determined.

The fifth stage is aimed to estimate the results of energy saving, which can be expressed both in monetary (for example, the cost of energy saved) and in physical (natural) units of measurement (for example, reducing the energy intensity of a certain type of agricultural products).

The sixth stage is comparing alternatives. For this, two main methods can be used: “cost-effectiveness” and “cost-benefit”. While the first method allows estimating programs in quantitative form (for example, increasing the amount of humus in the soil as a result of applying energy-saving technologies), the second one assumes that a conditional cost estimate that compares benefits and costs should be assigned to the results obtained [1, p. 135].

In a market economy, agricultural energy consumers must take into account the limited energy resources that can be available for use in production, as well as the existence of several alternative opportunities for the use of each type of energy resources. In spite of the fact that energy differs by its quality indicators, energy resources should be selected of such quality, which would correspond to the nature of energy consumption.

The use of certain energy resources in the production of agricultural products is the result of the choice between several options for energy consumption. The efficiency of choice can be determined by the profit from the most beneficial of all alternative ways of using energy resources, which follows from the law of interchangeable factors. This law determines the existence of several groups of

factors that mutually compensate each other. That is, in the case of a shortage of some types of energy carriers, they can be replaced by others. For example, in economically developed countries after the energy crisis of the 1970s, in some technological processes, fuel was replaced by electricity [2, p. 135].

The last stage is the presentation of the results of the analysis of energy consumption alternatives to the decision-maker and the adoption on the basis of the analysis of the decision to choose a specific option for the use of energy resources.

In addition to analyzing alternative energy consumption options, the energy management process should include the energy consumption planning and organization of its implementation.

In addition, it should be borne in mind that the process of production of agricultural products is determined by the specific features of the agrarian sphere of the national economy:

1. Bioclimatic conditions (solar radiation, entropy, land resources, water resources, climatic and weather conditions, biological processes of growth and development of agricultural crops and animals, biological properties of crops and animals, crop varieties and breeds of animals, seasonality of production, ecological production and so on).

2. The level of development of production technologies (technologies for the production of crop and livestock products, the use of organic and mineral fertilizers, a system for combating weeds, pests and diseases, a system of crop rotation, the part of the crop production, which enters the next production cycle, the way animals are kept and taken care of, the types of feeding of agricultural animals, the system of fodder production, the organization of reproduction and herd structure, a system for controlling diseases and pests of animals, the product storage system, etc.).

3. Technical support (i.e. system of machinery and equipment, technical condition of the means of production, material and technical support).

4. Organizational and economic factors (trends in the formation of production relations in the agrarian sector, the specifics of the organization of labor and territorial dispersal).

This reduces the uniformity and density of energy consumption, increases the extent of energy distribution systems and necessitates the creation in agriculture of significant reserves of energy resources to meet the needs for them during periods of peak load.

Thus, the energy management process is structurally composed of three phases: 1) analysis of alternative energy consumption options; 2) energy consumption planning and 3) implementation of such a plan. The choice between several options should be implemented taking into account the principle of interchangeability of energy resources. To increase energy consumption is expedient up to that limit, while the effect from the application of the last unit of energy resource can not be compared with the return. Energy consumption should be increased to the limit, until the effect of the last unit of energy usage can be compared with the return of

these resources.

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## INTERNATIONAL ASPECTS OF MANAGEMENT OF LAND RESOURCES FOR CONSUMERS' INTEREST

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Considering the external environment that affects the land management system of agricultural producers, we consider it expedient to single out such entities as consumers, other agrarian producers (competitors), and the state as a whole. Each of them exerts a certain direct and indirect influence on the existing land management system of specific agrarian producers and their groups and associations. In this case, there is always a reverse effect. These entities, as representatives of various interest groups (public and local communities, corporate and private interests), eventually create a mechanism for the land administration system that aims to achieve economic, social and environmental effects.

Concerning the realization of the interests of the consumers in the context of the rationalization of the agricultural land management system, it should be noted that they are of high priority because of their impact on national food security. Both market laws and the fact of the existence of the state structures indicate that first of all it is important to satisfy the needs of domestic consumers in the necessary food products with a wide range of high quality at reasonable prices. In the free market competition the state and competitors comprehensively contribute to this task, but in practice we are faced with the problem of imperfect competition in the agrarian market and in the market for land-use rights that is in a state close to transformation

and the land market that is just beginning to form.

Many scientists, among which one should mention

L.V. Boyko, M.I. Voloshin, N.V. Zinovchuk, A.G. Martin, V.M. Nelep, P.T. Sabluk, M.M. Fedorov, O.V. Khodakivska and others [2, 5-7, 9, 8], have devoted their research efforts to these aspects. At the same time, in the context of dynamic development, the problem of adaptation of the agricultural land management system to the interests of consumers (globalization and integration processes, changes in the legal framework with respect to land relations, changes in household incomes and expenditures, agribusiness conditions, etc.) is only being updated and requires research not only separately at macro-, meso- and microlevels, but in a complex manner in the three specified planes.

One of the most crucial elements of Ukraine's Eurointegration aspirations should be the development and implementation of a strategy for adapting legislation on the use and protection of land resources. In the context of European experience in the implementation of the state land policy, some areas of land reform in Ukraine do not bring, but on the contrary – distance us from the EU standards in the sphere of land use and protection, how they distract us from the existing standards of food quality and the safety of the citizens.

The current land policy is focused on squandering of land, rather than the land protection, effective use, and land fertility increase. The state budget (or the residents of the state) does not yet experience the economic benefit of the fact that the total land area of Ukraine is 60,4 million hectares (including 41,8 million hectares, or 69,2% of agricultural land, of which 32,5 million hectares is arable land, which is actually equal to 53,8% of the total area of the country). And this despite the fact that Ukraine is second only to Canada, the US and Russia by the area of agricultural land per one inhabitant (0,85 hectares). Only with the formation of a rational land use structure and the availability of appropriate scientific and resource support Ukraine could produce food products of high quality to meet the needs of 140 or 150 million people without significant changes in the environmental load.

International programs to help countries that are facing severe hunger (it is known, more than 1 billion people live in abject poverty nowadays), as well as the exhaustion of the world's opportunities to increase agricultural production through extensive factors, respectively, affects the growth in world food prices. In parallel with the resolution of fundamental issues of land ownership in Ukraine these tendencies are able to provoke a rapid growth in agricultural production. This raises significant questions regarding the use of progressive and at the same time safe technologies of agricultural production in Ukraine.

The question is complicated by the fact that the content of trace elements and amino acids in the soil and agricultural production decreases every year. The reasons for this lie in the way of development of agriculture that the countries of the EU, North America and many other developing economies have chosen. This way provides for increasing the productivity of crops and the productivity of

animals by increasing the application of mineral fertilizers, the use of pesticides, the achievements of breeding, as well as the improving of the feeding of livestock and poultry [3; 6, p. 20-21]. It provides a significant growth in the production of crop and livestock products. At the same time, the products are getting lower quality, because the yield growth is provided, first of all, by introducing high standards of mineral fertilizers into the soil. But plants together with harvest take out from the soil not only NPK, but also dozens of microelements and amino acids, which farmers practically do not compensate. Their amount in the agricultural products is getting smaller every year.

Consequently, there is another way of agriculture development. This is the production of high-quality, environmentally friendly products through the continued development of organic agriculture. It should be noted that in the developed countries of the world there is a clear tendency to increase production and consumption of bioproducts. In particular, in France such products are grown on the area which is statistically equal to the 2 % of the area of total agricultural land in this country. First of all, such products are directed to the organization of nutrition for children. According to the decision of the city authorities, the nutrition of children with organic products is compulsory in all schools in the country, at least, 2-3 days a week, and in some institutions this requirement is fulfilled even throughout the whole week. In Denmark, about 10% of dairy farms are environmentally friendly. On these farms, cows should receive organic food, have enough space for movement and in summer keep on pastures. Cows on eco-friendly farms give about 1500 liters less milk than on conventional farms, through a higher specific weight of roughage, as required by legislation [1, 6, p. 21].

Leading scientists of Ukraine note that our state should go in two possible ways [4, 6, 8]. The first of them will ensure the export of traditional quality products to the boundless market of the developing countries, while another one will ensure export of products to the highly developed countries of the world and to the wealthy strata of the population. In the near future, preference should be given to the first path, and only with the accumulation of the sufficient experience of organic agriculture it should be given to the second one. Thus, the formation of the system of organic agriculture should become a priority for Ukraine in the medium-term period. This is convincingly demonstrated by the experience of the developed countries of the world, where the sector of environmental goods and services becomes an investment attractive, dynamic and profitable segment of the domestic market and a highly developed segment of foreign trade [6, p. 22].

Although the production of organic products in the world has become an objective reality, in the agro-industrial complex of Ukraine it is developing spontaneously and without proper state support. Moreover, the role of organic production has significantly increased with Ukraine's accession to the WTO, taking into account the need to ensure the competitiveness of agro-industrial products in the world market. This direction of production, as a phenomenon, is not only a



reaction of producers to the growing need of consumers for safe food products, but a compromise between quantity and quality of these products. The production of organic products is focused on compliance with international environmental management requirements aimed at the environmental balance of economic and environmental priorities at all stages of a consistent change in the state of the product – from raw materials to the disposal of products. In accordance with Ukraine's international obligations on environmental management, this direction in the sphere of agro-industrial production requires special state support, as well as an appropriate scientific support, concerned with the formation of scientific bases for managing the production of organic products.

In Ukraine, there are several groups of business entities that produce organic products: farms located on organic lands suitable for cultivation of organic products; large-scale agricultural enterprises inspected according to international requirements; and the Association of bioproduction members "BIOLAN Ukraine", which produces organic products [2]. However, this product in Ukraine has not yet found a system of popularization and almost 100 % of retail chains offer the buyer several of its types in four or more times more expensive than the corresponding counterparts. At the same time, in food markets, most of the products from personal peasant farms can also be classified as the organic ones.

Today not only agricultural processing enterprises, but also personal peasant farms and farm enterprises, have established stationary outlets for their products, actively positioning it to be organic ("healthy", "useful", "home production" and "live").

In the process of solving the issue of satisfying consumers with high-quality products, it is advisable to use the so-called retarded development effect, as one of the advantages of Ukraine in the integration process. The essence of this effect is that it is not necessary to repeat the whole path of trial and mistakes of other countries. Therefore, our shortcomings (low yield and associated nutrient removal by crops) not only can, but also should become a competitive advantage of Ukraine [6, c. 22; 10]. Practically in all regions of the country there are quite large areas of arable lands (pastures and meadows) where one can get environmentally friendly food products that are competitive in the world food market [9, p 11]. At the same time, the main competitive advantage of agricultural products produced in Ukraine in the future will be not only its environmental friendliness, but also the usefulness of its content, which include 90 essential nutrients needed for human health. To do this, it is urgent to conduct serious scientific and experimental research, which should include such successive stages in the comparative assessment of the content of trace elements, vitamins, amino acids and fatty acids in typical soils, crop and livestock products in Ukraine and in other countries, which are considered to be the major food exporters in the world [6, p. 22].

The data cited above indicate that the determination of the efficiency of the use of agricultural land, as well as of the entire production, is erroneous only on the basis



of indicators of economic efficiency, neglecting the indicators of environmental and social efficiency.

Excessive concentration of agrarian capital and the formation of super-large land banks create a number of negative aspects related to the following interests of consumers of agricultural products (See Table 1).

*Table 1*

**The influence of excessive concentration of agricultural capital (including land capital) on the interests of consumers of agricultural products**

Kind of consumer interests	Consumer requirements	Submission of proposals to consumers
Product quality	High level of product quality is based on: - biological farming; - biological livestock production; - the use of natural ingredients in the processing of products; - compliance with the standards of the product quality management system for its production, processing, transportation, storage and sale (HACCP)	Standard level of product quality is based on: - intensive agriculture; - intensive livestock; - the use of artificial ingredients to extend the period of sale of products and to improve their taste characteristics; - formal compliance with HACCP (for the domestic market with serious violations)
Price of products	A low average level of prices, a wide range of prices for pre-packaged and bulk products; stability of prices by time and by region of the country	The price level corresponds to the world market prices, the formats of packaging of products are unified; as a result, there is a complete dependence on the conjuncture of the world market
Product range	A wide product range	A broad product range with a certain unification with international requirements
Output	Sufficient for consumption volume of products, due to which consumers will not need to form significant volumes of stocks for a certain season	Maximum output. With a certain conjuncture of the world market, there is a transition to substitute goods, imported goods, or a transition to another price segment. Moreover, there is the possibility of a rapid response to changes in the determinants of demand in the consumer market

The requirements of the national consumer market do not coincide with the proposal of the national agricultural producers, which gives rise to dissatisfaction with the interests of the consumers and their further “exploitation”. As a result, a model of oligopolistic competition in the food market is forming, which is characterized by the appropriate disregard for the existing economic laws, when supply of goods convenient for monopolists is able to create the necessary demand in the market. Moreover, it should be noted that in accordance with government

programs, it is necessary to increase the share of organic products in the total volume of agricultural output to 10 percent, as well as to implement basic agro-ecological requirements and standards in practice (in accordance with EU regulations) and to bring the volume of consumption of basic food products to the rational norms in 2015. At the same time, the development of crop production is carried out by: supporting large-scale production of crop production through encouraging the creation of partnerships of owners of land shares and stimulating organic farming [12]. In our opinion, these plans are more populist than those that are constructive ones, since in a short period of time it is impossible to increase two times the number of cows, to sustain long-term scientifically substantiated technological measures for switching to organic farming, to increase several times the area under perennial crops and to intensify gardening, viticulture and growing berries.

Thus, the strategy of the state land policy in Ukraine should take into account the current food situation in the world market with its significant growth in demand for agricultural products and an increase in prices for agricultural products, as well as the presence in the structure of the agricultural land fund of Ukraine of a considerable part of lands with potentially the most fertile black earth soils, which for various reasons did not receive such systematic degradation with the loss of valuable qualities of the means of production, as happened in Western countries with the developed agriculture.

At the moment, the main measures to reform land relations are not aimed at improving the effectiveness of the land management system. One of the main obstacles is the monopolization of the agrarian market and the land-use rights market. Self-exclusion of the state from the segment of the implementation of the economic function (except for the control function), in particular in the sphere of land relations, provokes disregard for the interests of national consumers and creates a threat of monopolization in the land market that is at the stage of formation. The prevention of this phenomenon should be one of the main tasks of the current stage of solidarity of scientists, politicians and practitioners of the Ukrainian agro-industrial complex.

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## **A SYSTEMATIC APPROACH TO ANALYSIS OF THE EFFECTIVENESS OF MANAGEMENT OF MEAT-PROCESSING ENTERPRISES' SUSTAINABLE DEVELOPMENT**

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The development of market relations has intensified the problem of independent and effective management of the enterprises in Ukraine. So, recently, the issues of product range, as well as the search for quality raw materials, possible sales markets and reliable business partners have become especially relevant. Consequently, in the context of strategic management, the problems of ensuring the sustainable development of industrial enterprises are of decisive importance. The effectiveness of the implementation of the planned tasks and the stable functioning of the industry as a whole is determined by an adequately selected strategy of sustainable development. However, in order to create an effective strategy, an enterprise must develop a sound, scientific methodology that allows an objective assessment of the effectiveness of the organizational work of an enterprise in terms of singling out its “weak” and “strong” sides, competitive advantages and other equally important

problems to be solved by the top-management representatives.

While characterizing the activities of the meat-processing enterprises in Ukraine, it should be mentioned that their economic activity remains volatile and ambiguous. In our opinion, the transformation of the principles of the production and economic mechanism of enterprise management should meet the current state of market relations.

The issues of the methodological approaches and algorithms of analytical calculations are not new to the intelligence community. They are widely considered by a sufficient number of foreign and domestic scientists, among which Downs A., Katz D., Lyden F., Scott W., Acoff R., Aniskin Yu., Afanasiev N., Hreiner L., Hrosul V., Ivanov V., Kyfiak V. Makukha L., Meskon M., Pogorelov Yu., Pryima L., Raievniewa O., Chernykh A. [1-17]. However, despite the absolute urgency of the topic of this study, the only and generally accepted approach to the method of assessing the effectiveness of management of sustainable development of the meat processing industry has not yet been developed. In addition, existing methods of assessing sustainability are not able to take into account the specific functioning of meat processing enterprises.

The purpose of this scientific intelligence was the development of an integrated approach in assessing the economic sustainability of meat-processing enterprises in Ukraine. The relevance of the study is due to the need for a thorough theoretical and methodological analysis and approbation of the assessment of sustainable development of meat-processing enterprises under a number of conditions. Among them, we consider it expedient to single out the following ones: reduction in the volume of imports of raw materials; increase in tariffs for energy carriers; insufficiently developed technological capabilities; the long-term lack of effective state programs for the development of the meat processing industry in Ukraine; inadequate fiscal policy; instability of the meat products market; low profitability and recovery of productive capacity.

The meat processing industry is considered to be the leading branch of the national economy that determines the economic sustainability and competitiveness of the Ukrainian production market in conditions of global economic instability. Its primary industrial link is a meat-processing enterprise, which should be regarded as an autonomous subject of managing market relations, the purpose of which is not limited to making a profit or increasing the capitalization of business assets. As for the specifics of the functioning of the branch economy, it should be noted that the main goal of the strategic management of industrial enterprises is a multidimensional system analysis of sustainable development, taking into account the synergetic principle of the functioning of meat-processing enterprises. In the context of modern scientific views on the theory and practice of this field, the improvement and expansion of the existing concepts is of decisive empirical significance, since in the course of our study it was established that most of the meat-processing enterprises in Ukraine are now in crisis, so we must note that their

current socio-economic situation is extremely unstable.

The above-mentioned problems in the development of the meat processing industry provoke a whole range of priority tasks in the modern economic theory. One of these tasks is closely related to the qualitative transformation of the management system of a specific enterprise or the industry as a whole, with their subsequent orientation to the principles of sustainable development, taking into account the instability of the market environment development. At the same time, those constructive transformations that occur in the industry are identical to scientific and technical cadres and targeted solutions of both national and local character. The managers who specialize in the meat processing industry unanimously affirm that the mechanism for implementing the sustainable development strategy is first updated at the level of the enterprise, and subsequently leads to the achievement of regulated indicators of production and consumption of meat products.

Summarizing the scientific and methodological approaches of the domestic and foreign theorists and practitioners in this field, the notion of “sustainable development of the meat-processing industry” should be understood as the development that can provide a balanced solution to socio-economic problems while preserving the market, economic, resource potential of economic entities, as well as to meet current and prospective needs of the population in meat and meat products.

It should be noted that the procedure for obtaining effective information regarding the sustainability of the enterprise development is a rather complicated and time-consuming process. Until now, there is no generally accepted approach to the methodological support of this process. Analysis of scientific literature on this issue showed that the implementation of any management function (i.e. forecasting, evaluation, planning, control or accounting), which concludes with the development of appropriate managerial decisions, is impossible without a well-chosen methodology of analysis. Such a complex methodology is a system of performance evaluation indicators that reflect the main trends in the development of the analyzed object in terms of its organization and functional potential, due to the probability of achieving the set goals. The development of such an approach requires optimization of the number of stages of analysis and at the same time obtaining reliable information on the results of economic activities within the framework of sustainable enterprise development management.

Consequently, the methodological approaches available to date, only partially guarantee a full monitoring of the aspects of sustainable development, so this assessment can not be considered in a timely and a systematic way. Often in practice, it turns out that to achieve sustainability the meat-processing enterprises must conduct a step-by-step analysis of the effectiveness of their management systems. Thus, the outlined problems require more similar consideration of the experience of experts whose range of scientific interests is limited to theoretical, methodological and practical studies of the sustainable development management system. This will allow integrating their experience to develop their own methodology for

analyzing the management effectiveness of sustainable development of the meat-processing enterprises, taking into account the factors of economic instability. Such a method can only be called a complex one if the qualitative and quantitative study of sustainable development management processes is conducted as a system structured into production and economically important components, as well as the management results assessment expressed by indicators of the level of sustainable development.

The purpose of the analysis of management effectiveness is to obtain not only quantitative indicators, but also, first and foremost, reliable information that, in aggregate, will allow us to assess the current state and performance of the industrial enterprise, determining the prospects for its further economic activity.

Structurally, the mechanism for analyzing the management of sustainable development of the domestic meat-processing enterprises can be described as follows (See Figure 1).

The proposed method consists of five coherently connected stages. So, the first of them is related to the selection of the object of research, a methodological support and the formation of an information basis for analysis with the use of financial and economic reporting, production, management, public reporting data and so on.

Moreover, within the framework of the first stage, we are talking about expert, system, analytical, applied and mathematical analysis; therefore, the current state of the enterprise is diagnosed with the identification of acute problem moments and analysis of external and internal factors.

The second stage provides for: 1) SWOT and PEST analysis of management of sustainable development in the crisis macroeconomic conditions and risk tolerance; 2) analysis, which examines management functions, organizational structure, regulatory support and administrative resources; 3) quantitative analysis of economic, financial, managerial, environmental and social activities, followed by a generalization of the data obtained and the calculation of specific indicators of sustainability and the risk of loss of stability.

Studies at the third level are aimed not only at assessing the state of sustainability, taking into account certain indicators and the formal approach to setting goals and objectives, but also on the transformation of individual parameters into the evaluation system of measurement coefficients. Also within the framework of this stage, calculation is carried out to determine sustainability indicators, as well as further generalization of the results obtained in the format of integrated indicators of socio-economic, environmental and risk stability, and the analysis of the results of the assessment of the control values of sustainable development compared with the average indicators of leading enterprises.

The main task of the fourth stage is to ensure the availability of tools for achieving sustainable development in all areas of the activity of the industrial enterprise (i.e. administrative, production, economic, organizational, planning, social, financial, economic and technological).

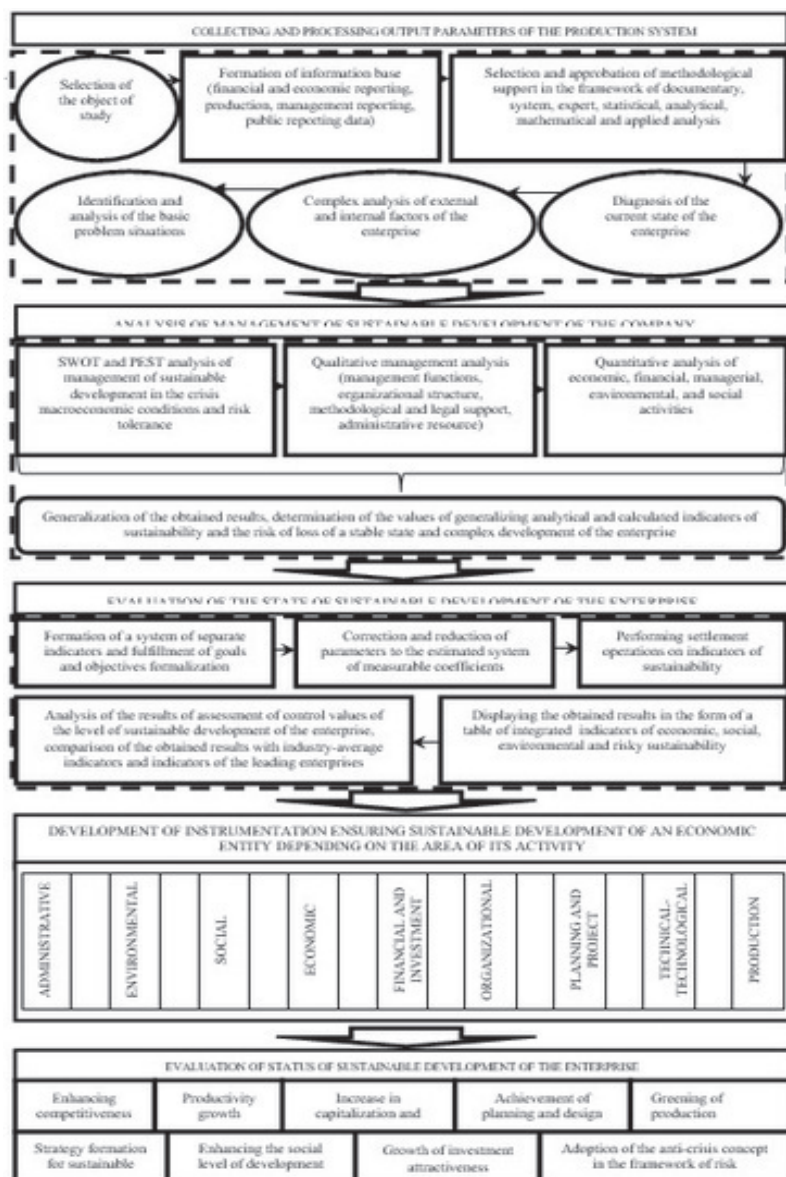


Fig. 1. Methods for analyzing the effectiveness of management of sustainable enterprise development



Within the framework of the fifth level, the strategic goals of sustainable development are achieved, in particular: strengthening competitiveness, increasing the level of capitalization, achieving the ecologization of production processes, developing an anti-crisis concept, minimizing the manifestations of possible risks and, as a consequence, formation of a full-fledged strategy for sustainable development.

Approbation and practical application of the developed evaluation methodology allow us to conclude that the management of sustainable development, as well as the sustainability of development as a whole, is a specific phenomenon, the realization of which is preceded by a number of risks. It is important to note that a certain system, whose basic subsystems are not stable, can not be called stable too, since it is a syncretic entity, which implies a similar development of all the structural elements. Thus, the analysis of management of sustainable development of any production system is a continuous process, which consists of such types of management activities as: objective assessment of the situation; formulation of goals and objectives of the analysis; development and implementation of relevant solutions; control over their implementation processes with possible adjustments.

Obviously, the proposed method for analyzing the management of sustainable development of the meat processing industry is sufficiently adequate, logically formed and such that objectively reflects the changes occurring in all functional and production divisions of the enterprises and constituent elements. Among its main features, we can distinguish structural flexibility, which, if necessary, can be reduced or supplemented depending on the conditions of the enterprise and the tasks to be accomplished.

Summarizing the above material, we can state that the analysis of management of sustainable development of a meat-processing enterprise has not only methodological, but also practical value, as well as a number of specific features that can be traced at different stages, such as: collecting initial data on the functioning of the production system, assessing the state of sustainable development, developing a sustainability toolkit, achievement of sustainability objectives by the enterprise.

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## **CHARACTERISTICS OF ELEMENTS OF THE SYSTEM OF MANAGEMENT OF THE ENTERPRISE RESOURCE CONSERVATION DEVELOPMENT**

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Modern world, which is constantly being globalized, has faced the problem

of resource insufficiency resulting from the constant growth of human population under the depletion of natural resources. Therefore, for the continued existence and development, modern society must adhere to the policy of rational consumption of resources and increase the efficiency of its activities.

Effective development is one of the main factors in gaining the competitive advantages by the enterprises operating under the conditions of uncertainty and environment variability. At the same time, the principle of ratio of expended effort to the result obtained is important, when each business entity aspires to obtain with minimal efforts optimal changes aimed at achieving the goal and implementing the strategy of the entire enterprise.

In production, above all, changes should relate to control systems. To organize effective production, it is necessary to introduce innovative technologies and tools, motivate all participants in the process to produce a strong common performance. One of the means for improving the efficiency and rationality of activities is the introduction of a system for managing resource conservation development of the enterprise.

The problems of managing the enterprise resource conservation development have been studied by the contemporary domestic and foreign experts, namely M.Karpunina, T.Petrushka, N.Herasimchuk, Yu.Dziadikovich, I.Vovk, S.Hutkevich, S.Yerokhin, I.Ippolitova, I.Sotnik, V.Shcherbak, O.Pohaydak, L.Kulik, D. Medouz, Y. Randers and others.

In accordance with the basic principles of the science of management, the main elements of a management system are the purpose, object and subject, principles, methods and functions of management. In addition, special attention in the study of the enterprise management system should be paid to the examination of the management mechanism and process. The system of management of the enterprise resource conservation development (RCD) is a set of interrelated elements that function in time as a whole in order to increase the efficiency of the enterprise resources use and the entire operation of the business entity in general (fig. 1).

The necessity for managing the enterprise RSD is determined by the following factors:

- globalization of the economy. Today, resources are considered not only in the context of individual countries, they are part of a single world resource. That is why Ukrainian enterprises should be involved in the formulation of an agreed strategy for improving the resource use efficiency;
- limited resources. The operation of the enterprises in Ukraine and in the world takes place under conditions of limited resources. The shortage of resources with the simultaneous growth of social needs leads to crisis phenomena in the country's economy.
- an increase in the use of resource saving technologies in Ukraine and worldwide. If an enterprise does not start to develop resource conservation, it risks losing its competitiveness;

- scientific and technological advances. Due to the scientific and technological advances, enterprises have the opportunity to move to an intensive resource conservation type of the economic growth, based on reducing the capital and material intensity of products, enhancing productivity, improving technical and economic indicators and product quality while reducing costs.

- owing to an increase in prices for resources, which is the reason for the increasing costs of the enterprise, there arises a need for saving and rational use of resources. The rising costs of resources determine the appropriateness of providing management of the enterprise resource conservation development, stimulating management decisions making in favor of implementation of the enterprise RCD management system;

- deterioration of the ecological situation in the world and state control of human impacts on the environment;

- reduction of incomes of the population, which leads to a decline in the purchasing power. Consequently, enterprises are forced to change their pricing policies by reducing the product costs. One of the ways to reduce the cost of production is resource conservation [1].

The purpose of the enterprise RCD management is to increase the efficiency of the business entity operation by reducing the resource intensity of production and human impacts on the environment by using modern advances in science and technology.

It should be noted that the enterprise RCD management should reflect the interrelationship between the overall production strategy and the enterprise RCD strategy. The goal of the strategy of the enterprise resource conservation development can be considered Optimization of expenses aimed at ensuring the security of the country, ecosystems, and society, as well as increasing the competitiveness of the enterprise.

The enterprise RCD management should be aimed at accomplishing the following tasks:

- reducing the cost of resources for production through the use of new equipment and technology;

- taking effective measures to provide the rational use of productive resources;

- replacing primary resources by secondary ones;

- introducing and using technologies for processing production and consumption waste;

- pursuing an effective innovation policy [2].

Thus, the enterprise RCD management results in increasing the output while reducing the cost of material resources, lowering the cost of production, boosting profit of enterprises in the industry, increasing investment in the introduction of resource conservation technologies, and improving the environmental situation. Resource conservation significantly affects the efficiency of production, which manifests itself in reducing the resource intensity of products with the growth of

enterprise profits in the long run [3].

The object of the enterprise RCD management is the enterprise resources, resource-saving technologies and the process of managing the resources of the enterprise.

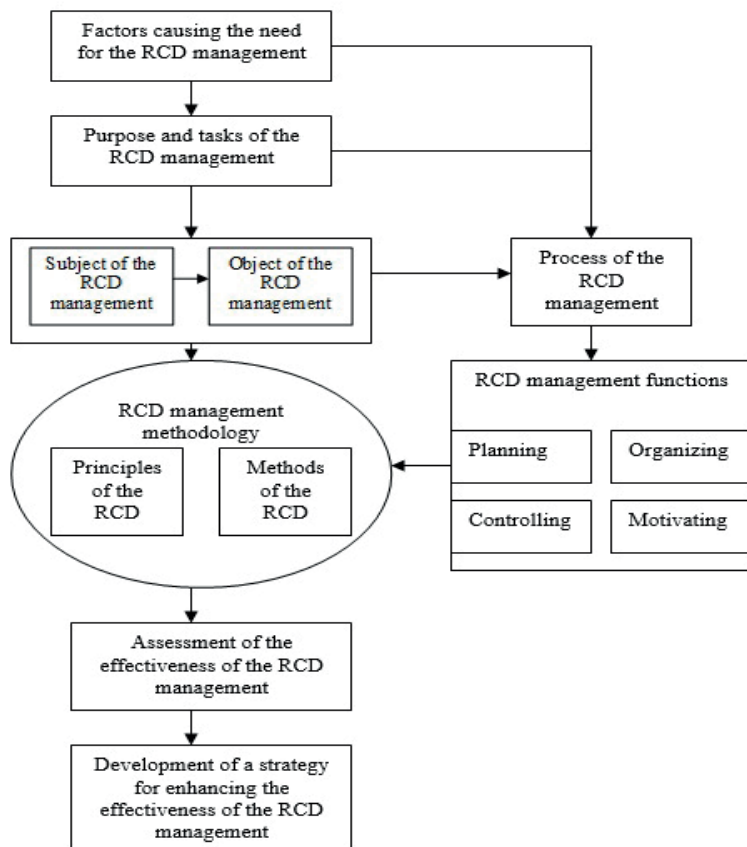


Fig. 1 – Elements of the system of management of the enterprise RCD

The subjects of the enterprise RCD management are a certain number of people belonging to the coordinated system of enterprise management and involved in making and implementing management decisions in the field of personnel management, production, innovation, financial, information activities.

The enterprise RCD management subjects include:

- owners of the enterprise;
- senior management of the enterprise;

- managers of consulting firms recruited to the enterprise for the development and implementation of resource conservation strategies;
- state and departmental administrative structures and bodies whose powers are determined by the relevant normative documents;
- the staff of the enterprise.

The methodological basis for the RCD management is the conceptual framework of modern economic and managerial theory, in particular the key provisions of resource logistics, modern management paradigm, as well as the basic principles and applied tools developed in the framework of modern managerial approaches [4, p. 44]. The methodology of the enterprise RCD management is a description of actions characterizing the ways and means of achieving the above goals.

The principles of resource conservation management are the following:

- the principle of purposefulness - the resource conservation development of the enterprise should correspond to the goals of the corporate, industrial and competitive strategy;
- the principle of scientific substantiation of the choice of the RCD management methods, which contribute to improving the efficiency of management systems;
- the principle of integration which means that all managerial decisions are interrelated and each of them has an impact on the final result of the enterprise RCD management;
- the principle of systemicity which takes into account the existing interconnections in the management system, and makes it possible to take into account all factors and develop a sequence of actions aimed at achieving the goals;
- the principle of continuity implies the need for the enterprise permanent RCD management;
- the principle of consistency which means that the enterprise maintains a certain sequence of operations with its elements in the process of managing the RCD;
- the principle of unity implies that any management decision is to comply with the logic, principles and methods of managing the enterprise RCD;
- the principle of being multivariate implies the availability of alternative options for the accomplishment of tasks;
- the principle of flexibility is the ability to adapt to internal and external changes by adjusting the directions of activities.

To date, there is no universal management method, including the enterprise RCD management. The efficiency of the enterprise RCD management depends on the correct choice of management methods. The essence of the RCD is realized through the enterprise RCD management methods.

While managing the RCD, it is advisable for the enterprise to use the method of system analysis, target tree, mathematical programming, quantification, forecasting, graphical method, analysis and synthesis, induction and deduction, as well as the methods for managing the functional subsystems of the enterprise, which are part of the organizational structure of the enterprise. Quality control, functional and cost

analysis, factor analysis, cost accounting, operations research, programming are among the most common methods for managing the functional systems used in the enterprise RCD management.

The fulfillment of the general management functions of the enterprise RCD makes a cycle of influence of the managing subsystem (subject of management) on the managed subsystem (object of management) or the process of the enterprise RCD management. Planning and motivating the RCD of the enterprise, as well as organizing and controlling are carried out through direct communication between the subject and the object of the enterprise RCD management. And the assessment, analysis and monitoring of resource conservation are carried out through feedback, namely, by determining the actual indicators of resource conservation, the efficiency of the enterprise RCD and the use of resources; comparison of actual indicators of resource conservation with the normative ones; analysis of detected deviations; identifying the reasons for unsatisfactory state of resource conservation at the enterprise. The process of the RCD management is implemented through its organization. Specific functions of the RCD management disclose the contents of the RCD management process and should ensure the achievement of the enterprise RCD goals [5].

Planning of the enterprise RCD involves formulating a strategy for achieving the set goals and objectives, developing programs, and making plans for the implementation of individual RCD management measures, aimed at achieving the goal of the enterprise RCD management. The organization ensures practical implementation of the adopted plans and programs. To this end, it is necessary to document the adoption of the plan in the form of an order, provide staff familiarization with it, and bring specific tasks to their doers. In the framework of this function, the issues of distribution, creation of conditions for the implementation of the planned schedule of individual events are addressed. Motivation combines material interests with moral regulators of the subjects of the enterprise RCD management. Monitoring in the process of the RCD management ensures supervision and verification of compliance of the achieved RCD level with the requirements, and involves the development of standards in the form of a certain system of quantitative indicators that allow the timely response to changes in the implementation of individual measures and make necessary adjustments to management decisions [4].

Realization of the general and specific functions of the enterprise RCD management is impossible without fulfilling support functions contributing to their implementation. This group of functions includes methodological support, information and technical support, organizational support, staffing and ensuring coherence in the management system of the enterprise RCD [5].

When developing a strategy for the implementation and improvement of the enterprise RCD, it is necessary to select from the whole set of the problems that most closely reflect the link between business strategy and effective policy of resource management and resource conservation.

Thus, the enterprise RCD management system built on the above principles can only be effective if one considers and ensures the unity of the goal, functioning of all components, and the process of internal and external policy of the enterprise, the system of motivation that is capable of getting all doers interested in increasing the efficiency of the enterprise RCD, the use of modern technical and technological basis of management capable of providing the RCD of the enterprise.

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## **SCIENTIFIC AND THEORETICAL BASES OF ELABORATION OF MECHANISM OF DEVELOPMENT OF INDUSTRIAL ENTERPRISE**

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The necessity of taking into account of the modern state of productive sphere, terms of market her progress trends is required to the revision of principles of forming of strategy of development of industrial enterprises. The table of contents of existent principles of strategic development must be specified taking into account the educed features of functioning of industries of industry on the modern stage, and also forms of their display. Generalization of existent principles of strategic development and analysis of market tendencies of industrial enterprises allowed to define basic principles of forming of strategy of development of industrial enterprises,

and also their maintenance. Yes, introduction of principle of scientifically-analytical foresight and prognostication will allow to take into account existent economic laws, conformities to law and tendencies, and forming of pre-conditions will promote for the design of the market state of affairs [2].

Taking into account conformity to law of process of evolution of production, during what functioning of enterprise adapts oneself to the market environment and branch tendencies, an important value is acquired by principle of adaptively. His taking into account gives an opportunity to provide for, to resist or adapt to the possible changes of environment and accordingly to administrative decisions in relation to development of subject of manage at the changed operating conditions

The decoupling of objects of industrial sphere is caused by the necessity of taking into account of features and terms of their development at the decision of task to the choice of strategy of development of industrial enterprises. Largely it is conditioned not only considerable enterprises after the level of providing and intensity of their use but also after the volumes of financing in a productive infrastructure. Therefore an important value is acquired by principle of complex character of forming of strategic decisions.

It is necessary to mark that the accumulation of financial possibilities, volumes of GDP provided with an increase, creates terms for development of productive infrastructure of industrial enterprises. However limit nature of financial resources that head for it, and also the alternativeness of variants of investing is accented attention on actuality of application of principle of the rational use of resources and accordingly decision of important task at forming of strategy of development of enterprise, namely - effective distribution of a limit money on the aim of socio-economic development [7].

Offer principles are subject to taking into account especially at the decision of task of development of instruments of forming of strategy of development of industrial enterprises.

Application of the marked principles will assist not only the increase of level of quality of process of choice of strategic directions of development, to providing of high adaptive properties of enterprise to the external and internal changes but also forming of the flexible going near the management of search of compromise decisions processes in case of occurring of risk changes at strategic and operative level [6].

Important for the construction of mechanism of forming of strategy of development of enterprise taking into account the terms of market environment there are laws: demand, increase of necessities of consumers, increase of the productivity, economy of time, turnover, accordance of the institutional system to the level of productive forces, effect of scales of production, cost, limit nature of resources, growing return, concentration of capital. The presented list of laws is well-known, that is why does not need the additional detailed ground and explanation [5].

A correct choice and further use of instruments and methods of development of



strategy of enterprise have an important role at forming of strategy of development of enterprise. In an accident, for example, well-known is practice of application of strategic matrices for the choice of perspective directions of development of enterprise. But, taking into account not only certain subjectivity and inaccuracy of results of estimation of different types of business but also absence of system work from realization of similar researches by the Ukrainian enterprises, the methods of portfolio analysis have certain difficulties in their practical realization. Therefore mathematical methods and methods of prognostication become the alternative methods of analysis and choice of directions of activity. The widest application presently at the choice of strategy of development of enterprise got such mathematical methods, as a mathematical programming and imitation

design [8]. What touches the methods of prognostication, then expert estimations among that it is possible to distinguish such intuitional methods have sufficient popularity, as: round table, analysis of hierarchies, programmatic prognostication, collective generation of idea and others like that.

Investigating and summarizing methods that is used for forming of strategy of development of enterprise, will mark about their sufficient variety. To distinguish and choose one of them appears impossible through the presence of their features, defects and advantages. Yes, during an optimization design it is possible to get more precisely, than during realization of portfolio analysis, quantitative estimations of potential of different enterprises. An imitation design allows to analyze various factors that can in future negatively influence on the investigated system. It is however needed to mark that the methods of mathematical design also suffer a substantial defect - during an analysis quantitative parameters are estimated only. The row of substantial quality factors can remain after the scopes of research. Therefore in opinion of candidate for a degree, a necessity and important is the able combining of different methods at forming of strategy of development of enterprise [1].

Investigating and summarizing methods that is used for forming of strategy of development of enterprise, will mark about their sufficient variety. To distinguish and choose one of them appears impossible through the presence of their features, defects and advantages. Yes, during an optimization design it is possible to get more precisely, than during realization of portfolio analysis, quantitative estimations of potential of different enterprises. An imitation design allows to analyse various factors that can in future negatively influence on the investigated system. It is however needed to mark that the methods of mathematical design also suffer a substantial defect - during an analysis quantitative parameters are estimated only. The rows of substantial quality factors can here remain after the scopes of research. Therefore in opinion of candidate for a degree, a necessity and important is the able combining of different methods at forming of strategy of development of enterprise [6].

Strategic prognostication and analysis needed, first of all, for the detailed

research of factors of external and internal environment. Realization of this function provides for : exposure of basic economic tendencies and branch descriptions of functioning of enterprise; research of competition environment (exposure of degree of influence of customers, suppliers, competitors and others like that); ground of key factors of success of enterprise (exposure of the favorable special descriptions of external or internal environment); prognostication of future tendencies is in relation to the attractiveness of industry and its prospects [9].

A process of the strategic planning is certain family by a local mechanism by means of that determined and pass monitoring and selection administrative decisions in relation to industrial and economic activity of enterprise. Him the having a special purpose setting consists in providing of innovations and organizational changes, necessary for a construction strategies of development of industrial enterprises. In turn, the strategic planning includes: allocation of resources, adaptation to the environment, internal co-ordination and adjusting, taking into account of organizational changes.

The important result of the strategic planning on an enterprise is: development of complex of rules of making and acceptance of strategic decisions by the management of enterprise; determination of having a special purpose indexes of the planned results of realization of strategic decisions; realization of strategic events is through raising of certain tasks and financial providing of their implementation [10].

Strategic organization and motivation envisage realization of next constituents : forming of strategic potential of enterprise; development, choice and realization of strategy of development; a concordance of organizational structure of management is to select strategy of development; overcoming of possible resistance to the organizational changes by creation of corresponding corporate culture and others like that.

Strategic control and account provide: flexible and operative management problems and aims; co-ordination of projects and programs; control after destabilization of the organized and economic systems and minimization of enterprise risks and tendencies of the crisis phenomena, realization of structural changes, acceptance of organizational and legal decisions.

The system of providing is based on cooperation of the normatively-legal, financial, resource, organizational and research and information providing. Taking into account absence in practical activity of clear recommendations and certain directives in relation to the of process of forming and realization of strategy of development, it is necessary to distinguish two important terms of effective realization of strategy: 1) integration processes between the different management systems and elements of enterprise; 2) monitoring of strategic situation (analysis of existent strategic breaks). It costs to accent attention, that successful realization of strategy is possible for an account: to the presence of mine-out of internal organization communications; to participation of all managerial staff in the process

of realization; valuable data ware; application of the management system as factor of organizational culture able to stimulate introduction of strategic initiatives [4].

It should be noted that the process of forming an enterprise development strategy includes the consistent implementation of important stages: analysis of the external environment (research of market trends and determination of their impact); justification of strategic goals and formulation of the mission of the enterprise; analysis of resource opportunities for enterprise development; internal integral assessment of the level of development of an industrial enterprise; forecasting of market trends; definition of perspective and priority directions of enterprise development taking into account market trends; choice of strategy for the development of an industrial enterprise; realization of the strategy of enterprise development and its adjustment [3].

In the context of ground of strategic aims and determination of priority directions of development of enterprise, it follows to take into account that the process of forming and realization of strategy of industrial enterprise takes place under act of many factors. Understanding under the factors of condition, that is needed for realization of аналізуємих processes, and also possible consequences that influence on their results, an analysis of environment, namely research of market tendencies and determination of their influence, is the superimportant near-term stage within the framework of development of mechanism of forming of strategy of development of industrial enterprise.

As be certain, market tendencies present by a soba ideological aspirations, that inherent to every certain direction of economy in a certain limit period of time, and that constantly change and influence on activity development of objects of manage, that function under act of modern market economic conditions. In this connection, within the framework of analytical division it was educed and appraised industrial and economic, organizationally-administrative, scientific and technical and social indexes of development of industrial enterprises, and also them market environment and resource providing.

Coming from a situation that was folded at the Ukrainian market of industrial products, it is possible to draw conclusion, that producers (enterprises of machine-building industry) are approximately in equal competition terms from the point of view of influence of factors of environment (political, economic, social, technological) [2].

It is necessary to accent attention, that a multidimensional estimation of external and internal environment, that allows reducing the factors of economic, ecological, social and risk activity, is the base of research and information description of the investigated enterprises. It, in turn, simplifies determination of trajectory of their development, in fact allows educing and realizing perspective possibilities of development and minimizing existent risks and threats.

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### **PART 3. CURRENT NATIONAL AND GLOBAL FUNDAMENTALS OF SOCIAL AND ECONOMIC SYSTEMS' DEVELOPMENT**

#### **FOREIGN ECONOMIC ACTIVITY IN THE UKRAINIAN AGRARIAN SECTOR: STATE AND PERSPECTIVES**

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International trade for each country is an important part of its international economic relations. In its development, the international trade of individual countries in different periods is based on various theories: Mercantilism, Absolute Advantage Theory, Comparative Advantage Theory, Porter's Theory of Competitive Advantages, Intra-Industry Trade Theory, Theory of Customs Union.

Obligatory is the implementation of state regulation of foreign economic activity of enterprises - subjects of international trade. One of the constituent elements of the foreign economic policy of the state is the foreign trade policy, the purpose of which is to ensure the balance of the economy and the balance of the internal market; stimulating progressive structural changes in the economy; promoting integration into the system of international division of labour.

The foreign trade policy of the state can be carried out in two types: free trade, characterized by minimal interference of the state in foreign economic activity and unrestricted access of foreign goods to domestic markets; protectionism, which involves state interference in international trade, the introduction of various restrictions in relation to foreign goods in order to support the national producer. However, in pure form, no one of this approaches are not used practically. All countries use protectionism to a greater or lesser extent, although the free trade policy has significant advantages.

In today's conditions it is virtually impossible to find a country's enterprise that would in no way be linked to aspects of international trade, international cooperation, etc. Kravchenko V.O., Gudakov O.K. note that low wages at domestic enterprises continue to be one of the key competitive advantages in the international division of labour system, which in general characterizes a rather inefficient economy of

the country [1]. Melnik T.M. emphasizes that the participation of countries with a transformational economy in the processes of globalization, the formation of mutually beneficial international economic relations, and the possibility of obtaining positive results from them depend on the effectiveness of the country's economic policy [2]. The most substantiated and comprehensive researches on the development of international trade in agricultural products, with the definition of positive and negative consequences under the conditions of different vectors of the country's international integration, are noted by Sabluk P.T., Bilorus O.G., Vlasov V.I. [3], Kvasha S.M. [4] and others. At the same time, we consider it expedient to systematize the consequences of the implementation of a multi-vector of international economic relations of Ukraine for different levels of participants - subjects of foreign economic activity.

As noted above, international trade in agricultural products to a large extent depends on the content of its foreign economic policy. Ukraine has defined European integration as the main strategic goal of its foreign economic policy. At the same time, the geopolitical location of Ukraine, as well as the rapid integration processes in the world, the strengthening of the globalization of the economy, determines the need for Ukraine to formulate a balanced multi-vector foreign economic policy.

Melnyk T.M. notes that the efficiency of the development of the national economy must be consistent with economic interests in the foreign trade sphere, among which the highest priority is ensuring: the implementation of competitive advantages in the international division of labour; structural optimization and balance of foreign trade operations; increase of competitiveness of the country in the world markets as a basis for guaranteeing national economic security; criteria of effective realization of foreign trade interests is their adequate understanding of all subjects of foreign economic activity [2].

The entry of Ukraine into world economic relations, the implementation of the declared integration aspirations for joining certain international groups, undoubtedly, affects the development of foreign economic activity of its individual branches, including affecting international trade in certain types of goods, in particular, in recent years has put in priority foreign trade in agricultural products and foodstuffs (Fig. 1).

Research shows that in the structure of Ukraine's exports in 2016 (Fig. 1), the output of agriculture and processing industries reached more than 40 percent, while in 2012 it occupied only a quarter, ahead of such leading until recently export-oriented branches of the economy as chemical (in 2016 - 5%) and the machine-building industry. The second place in the commodity structure of the country's trade was the trade in non-precious metals - 22 percent, which confirms the raw material nature of goods from Ukraine.

Taking into account that the agrarian sector remains the main supplier of foreign exchange earnings in Ukraine (43 percent), it is completely unreasonable to show increased interest in it in terms of forming geoeconomic directions of development

of foreign economic activity in the conditions of formation of international economic relations and realization of Ukraine's integration aspirations.

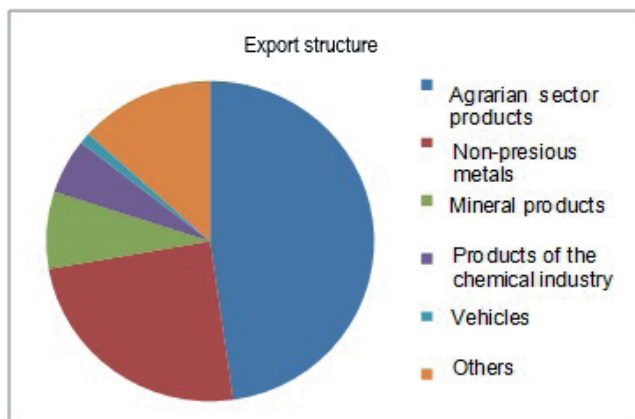


Fig. 1. Commodity structure of Ukraine's exports, %, 2016

*Source: compiled according to [6].*

Therefore, we will focus on the study of trends in international trade in agricultural products.

The analysis of foreign economic activity by the subjects of management of the agrarian sector of the country over the last ten years shows that it is characterized by, undoubtedly, steady tendencies to build up. At the same time, it should be noted that in 2005 - 2012 the volume of foreign trade in agricultural products has increased by 3.5 times, and in 2015, compared with 2012, they decreased by 1.4 times, and in 2016 - in 1,3 times.

The foreign trade balance during the period under review is positive and makes about 6-7 US billion dollars annually for 2015-2016. The volume of export of agricultural products in 2016 amounted to 15.45 US billion dollars, which is 2.3% more than last year. In 2016, among the agricultural products that formed a positive balance of foreign trade, it should be noted sunflower oil, wheat and maize, which together provided a surplus of almost \$ 8.9 US billion dollars.

The negative balance was mainly generated by tobacco raw materials, frozen fish and citrus fruits (together - minus 762.8 US million dollars) imported into Ukraine [7].

It must be admitted that agricultural products are competitive in world markets, while its exports are raw materials. This problem was particularly aggravated after 2014, known for tense political events, the beginning of hostilities in eastern Ukraine, the breakdown in trade relations with Russia, whose market was until recently the main consumer of Ukrainian agricultural products, supplied after

more or less extensive processing. Although from January 1, 2016, the deep and comprehensive free trade area with the EU, which Ukraine has fought for so long and received certain preferences in trade in agricultural products and food, has been fully operational, foreign trade with the EU is limited by quotas and high quality and safety requirements until domestic products. In 2016, the structure of export of agricultural products and food products of Ukraine was raw material oriented.

Research shows that the largest share in the commodity structure of exports is sunflower oil (24.0%), wheat and corn (17.5%), and the share of fodder crops: soybeans, sunflower seed, barley is still almost 17%.

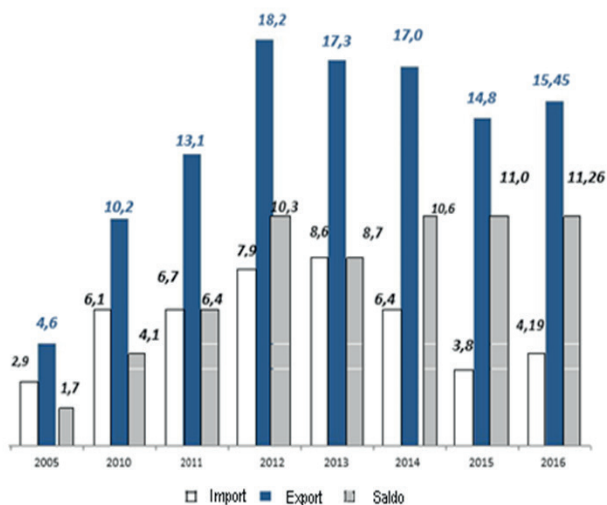


Fig. 2. Foreign trade of products of the agro-industrial complex of Ukraine, US billion dollars

Source: [7].

A detailed study of the commodity nomenclature of foreign trade in agricultural products and processing industry showed that in 2016 compared to 2015, there was a rapid increase in exports of such domestic products: live pigs - by 41.9 times, palm oil - by 4.5 times, other fresh fruits - 4.3 times, sunflower seeds - by 4.1 times, sugar - by 4.1 times, apples and pears - by 2.7 times, dried fruit - by 2.6 times, by malt - by 2, 1 time, and apricot and cherry - 2.1 times. The situation with export of livestock farming products is somewhat worse. Only sales of poultry products (meat and eggs), dairy processing enterprises, which undergo quality inspections on compliance with the established standards of the countries to which their exports are directed, were started.



Describing the directions of development of international trade in agricultural products and food in the context of expanding the vectors of international cooperation of Ukraine and development of international economic relations, we consider it appropriate to emphasize that Ukraine is an important player on the world markets for agricultural products and foodstuffs that has a strong export potential. And for its realization it is necessary to create a well-considered foreign trade policy, guided by the interests of the national economy [8]. The European Union has opened its markets in accordance with the Agreement, but the instruments for this are the gradual abolition of customs tariffs, the granting of duty free access within the framework of quotas, as well as the need for large-scale harmonization of Ukrainian laws, norms and standards with those operating in the EU in various direct or indirect ways with sectors trading (Fig. 3).

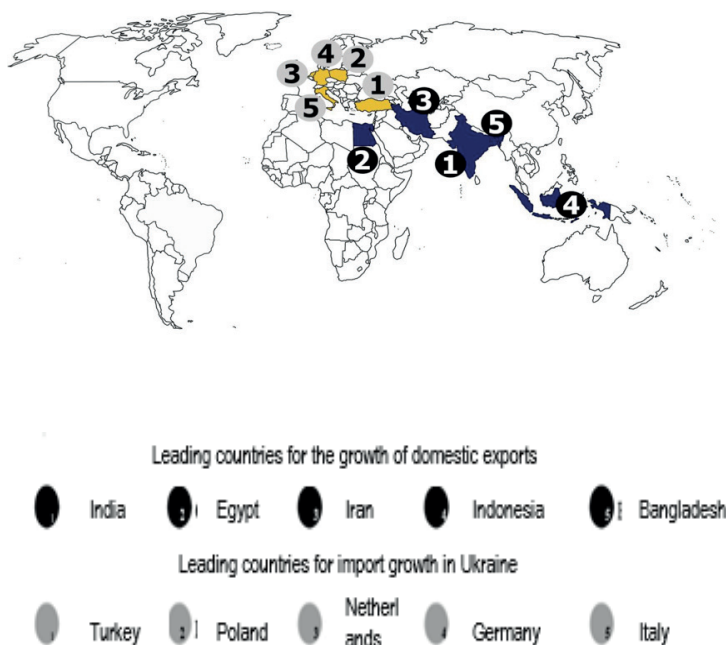


Fig. 3. Leader countries by growth in exports / imports in 2016 (compared with 2015)

The foreign trade policy of the state in recent years is aimed at the development of new global markets for products and food [9]. It is a non-alternative to ensuring foreign exchange earnings in the country, the implementation of export potential, and the entry into the international division of labour.

At the same time, any changes taking place in the world market will certainly

affect the conditions and results of domestic producers. Domestic agrarian products position on the markets of other countries of the world. Issues of stimulating the export of agricultural products and foodstuffs, as well as increasing its competitiveness on the world market in the context of Ukraine's integration aspirations and the intensification of globalization processes, are of particular urgency. The liberalization of foreign trade ties allows countries to significantly expand their external markets and use their comparative advantages appropriately.

Summarizing the geography of export operations, it can be noted that the countries of Asia (47.5% - exports) and the European Union (27.5% of exports) were the priority directions of agricultural products and food supply for Ukraine. In total, the number of partner countries for foreign trade in trade in agricultural products and food for Ukraine in 2016 amounted to: 174 - for exports and 161 - for imports. The largest importer of Ukrainian agricultural products in 2016 was India, which accounted for 10.2% of total exports, Egypt - 8.6%, China - 6.6%, Spain - 5.4%, the Netherlands - 4.6%, and Iran - 4.4%. It can be stated that Ukraine, with its agricultural products, significantly reduced its presence on such well-known markets of CIS countries, and in 2016 only 7.7 percent of its exports were directed to this market. The main partners from the CIS countries were Moldova and Belarus.

Thus, the development of international economic relations of Ukraine and the change in the areas of economic cooperation lead to a reorientation of international trade in agricultural products and foodstuffs [9, p.117]. During the period under study, international trade in agricultural products and foodstuffs in the country had a positive foreign trade balance, and in 2016 it provided more than 40 percent of foreign exchange earnings in Ukraine. During the analyzed period, it is characterized by a significant increase in the volume of export-import operations, the development of new markets for domestic products, as well as an increase in the number of partners in international trade. The implementation of various vectors of international integration of Ukraine has a direct impact on the development of foreign economic activity in the agricultural sector of the country. The implementation of the Agreement on the establishment of a free trade zone with the EU creates unprecedented opportunities for Ukraine to intensify activities to modernize production, increase product standards and introduce higher standards of living and management, which will be required in the short-term dimension of additional costs [10, p.246]. At the same time, the benefits in the medium and long term will be unquestionable and significant.

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# STRATEGIC APPROACH TO LENDING TO AGRICULTURAL ENTERPRISES IN THE CONTEXT OF UKRAINE'S FOOD SECURITY

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Strategic approach to lending to agricultural enterprises in the context of food security of Ukraine.

In the conditions of instability of the economy, crisis of payments, intensification of inflation processes, the question of financing domestic agricultural enterprises from the effective activity of which depends on the level of development of the agroindustrial complex and the national economy as a whole, as well as the state of food security of Ukraine is very relevant.

After analyzing the provision of financial support to agricultural enterprises in Ukraine, it was found that it is now appropriate to focus on the following main areas of financing (Figure 1):

- 1) bank lending to agricultural enterprises;
- 2) state support of agricultural enterprises;
- 3) non-bank lending to agricultural enterprises;
- 4) granting loans to agricultural enterprises by international financial organizations and funds.

Let's consider in more detail each of the above-mentioned areas of financing.

1. Provision of loans to agricultural enterprises by international financial organizations and funds is provided for by various agreements to which Ukraine acceded.

In a situation where private investors and lenders are not ready to invest in Ukraine, international financial organizations play an active role in lending our agribusiness. Receiving funding from these organizations is a rather complex and lengthy process, but as a result you can get significant amounts for the required project and at relatively low interest rates.

At present, agricultural enterprises of Ukrainians can apply for loans directly to

international organizations, as well as receive loans through banking institutions, which are relevant programs (Table 1).

*Table 1*

**The main international organizations providing loans in the agricultural sector**

International Financial Institution	The name of the program	Program Description
IFC	Directly by IFC	Wide range of financing. The program is supported by the Austrian Ministry of Finance and the Ministry of Economy (EVD) of the Netherlands.
	IFC Agribusiness Standards Advisory Program	Assistance in implementing food safety in agro-enterprises.
	Ukraine Agri-Insurance Development Project	The program promotes the development of the agro-insurance system in Ukraine.
	Improving Corporate Governance Practices in Europe and Central Asia	The program is aimed at improving corporate governance
EBRD	The Eastern Partnership SME Finance Facility	It is aimed at lending to small and medium-sized businesses, in particular micro-enterprises, after the financial crisis
	UKEEP	EBRD Targeted Financing for Ukrainian Private Companies in Different Economic Sectors to Invest in Energy Efficiency and Renewable Energy Projects
	Micro lending program	Financing of production, services, agriculture, trade (only for PP and microenterprises).
German-Ukrainian Foundation	Agri-sector refinancing program	Financing of production, services, agriculture, trade (only for PP and microenterprises).

*Source: systematized by the author on the basis of [1]*

In our opinion, both large and small agricultural enterprises, which meet the criteria put forward by borrowers to these international organizations, can obtain loans for the development of their business.

2. Having examined the theoretical foundations of bank lending of agricultural enterprises and analyzed the practical aspects of the issue, we identified a number of urgent problems, the solution of which would facilitate the growth of lending by agricultural enterprises banks. Yes, we consider it necessary to indicate the following directions of improvement of bank lending of such enterprises, namely:

- development of new lending programs for agricultural enterprises, which take into account the features of the agro-industrial complex as much as possible;

- ensuring minimization of uncertainty in bank lending to agricultural enterprises;
- raising the level of risk management in lending to agricultural enterprises by creating additional insurance products and state guarantees;
- provision of a sustainable and effective mechanism for preferential lending to agricultural enterprises through the mechanism of compensation of interest rates by the state;
- development of credit co-operation in agriculture, which will allow to use commercial loans;
- synchronization of interests of participants of bank lending of agricultural enterprises;
- attraction of funds from international financial organizations and funds for long-term lending to agricultural enterprises.

Banks providing loans to the agrarian sector carry significant investment and credit risks, which are primarily related to the production risk and the risk of collateral.

Production risk in the agrarian sector is primarily associated with the cultivation of agrarian products. In this case, the risk arises from the non-receipt of the volumes of crops that were planned or the volume of cultivation of large and small cattle, as well as other livestock breeding for sale on meat and dairy products.

A pledge in the agrarian sector can be the future harvest or material and technical base (fixed assets that are involved in the production process). The risk of this collateral is associated with the risk of reducing the liquidity of said fixed assets due to their high depreciation, which, in turn, does not allow them to be used as collateral to the full extent. Taking into account seasonality of production and natural and climatic conditions, realization of the future harvest may not provide the necessary amount for repayment of borrowed funds that may be associated with a low purchase price of agricultural products [2].

A separate issue is the use of land as collateral in the course of issuing bank loans, but this issue is unsettled and because of the imposed moratorium on the sale of agricultural land, which complicates the lending of agricultural enterprises [3, 4].

To date, there are many programs to support lending to agricultural enterprises. Therefore, the main task is to comprehend and select the programs that are most suitable for each individual agricultural enterprise.

Consequently, domestic producers are interested in the possibility of lending to the future harvest, therefore, cooperation with banks is an integral part of the formation of the basis of food security of Ukraine and domestic consumers. Both domestic and foreign banks have confirmed the readiness to lend to agricultural production in such areas as: new technologies, equipment and equipment, development of breeding, solving of social problems in the countryside, etc.

However, despite the fact that using as a loan guarantee of the future harvest is a promising direction for improving the work and financial condition of agrarian enterprises, this kind of collateral is currently rarely used.

The general tendencies of the market of bank lending indicate that there is a gradual decrease in interest rates on loans, therefore, it is expected that from the side of agrarians, the services of banks for lending will be even more in demand.

The main reasons for the low level of use of future yields as collateral is the high risk associated with both the process of cultivating the harvest and the activities of agricultural enterprises themselves, namely:

- incompleteness and / or insufficiency of information about the activity of the enterprise,
- the state of the food market,
- demand and supply for crops or goods produced by the borrower-agrarian, etc.

Other causes of uncertainty in agri-lending are: natural disasters, volatility of natural and climatic conditions, diseases of plants and animals, and the sudden change in demand for products, unexpected disruption of raw materials supplies, etc.

An effective tool for minimizing credit risks in bank lending is insurance. However, insurance under agri-credit has been developed rather weakly, which is directly related to the imperfection of the legislative framework.

We consider it necessary to regulate the issue of the introduction of a separate license for agri-insurance for insurance companies, which will allow to create the appropriate infrastructure, prepare personnel, and develop modern standard insurance products that would contribute to the development of this segment of insurance and agro-crediting in Ukraine.

The issue of insurance is very relevant in case of use as a pledge of future harvest. In Ukraine there is almost no system of insurance of crop insurance, but in developed countries the share of insured crops is 15-20%, and in Ukraine - only 3% [5].

Studying foreign experience in the field of agri-insurance undoubtedly points to its advantages for business, namely:

- promoting the provision of food security of the state and enhancing export potential;
- ensuring the stability of the income of both agricultural enterprises and lending institutions;
- prevention of bankruptcy in unfavorable years and support of economic activity of agricultural enterprises in the future;
- stimulation of improvement of technologies of production of agricultural products;
- assistance to increase the trust of borrowers, which allows to attract loans and, accordingly, expand production;
- performance of the function of a predicted and cost-effective alternative to direct payments from the budget.

An important aspect of the process of raising trust in insurance in the case of bank lending to agricultural enterprises is the training and explanatory work of

the bank manager with the borrower on the necessity and benefits of insurance. Agrarians with great caution and misunderstanding relate to the insurance process, considering it as an unnecessary expense item, which increases the already high cost of using credit funds.

3. The study of the issue of providing state support to agricultural enterprises has brought the effectiveness of cooperation between banking institutions and the state, which significantly reduces uncertainty and reduces interest rates on bank loans. But along with this, the mechanism of providing state guarantees should be balanced, since non-repayment by the borrower leads to spending the state budget funds.

State guarantee is the obligation of the state (represented by the government) to fully or partially execute payments in favor of the creditor in case of non-fulfillment by the borrower of obligations on loans received [5].

Due to the inherent nature of the agricultural enterprises' activities, the aforementioned threats, with the help of the state, can improve the situation with their lending.

However, there are a number of problems, only in case of solving which at the level of the state can promote bank lending to agro-enterprises, namely:

- first of all, it concerns measures to improve, systematize and simplify the mechanism of preferential crediting of agricultural enterprises,
- in the second - the use of non-material methods of support to enterprises agro-industrial complex.

As already noted, the main reason for the limited lending to agribusinesses is the high cost of loans, which is why there is a need to find ways to reduce their prices. The main solution to this problem is to provide compensation for interest rates at the expense of budgetary funds. However, this mechanism is constantly changing, it is non-transparent and, in difficult economic times, is firstly curtailed or minimized [6].

So, at the moment, a rather small part of banking institutions has such joint programs with the state in compensation of part of interest rates. At the same time, the process of selecting potential actors who can use the program specified deserves special attention.

Since the assessment of the possibility of granting a preferential loan should be made individually for each individual enterprise, it is not always transparent for both agricultural enterprises and the public. For the same purpose, we propose to differentiate the size of the compensated interest rate and the amount of general fund resources to divide the interest rate compensation into funds for borrowers depending on the following criteria:

- the term of functioning of the agricultural enterprise;
- credit history of the agricultural enterprise;
- financial position according to NBU methodology [7];
- the size of land plots owned or leased;



- possession of a liquid collateral, etc.

For example, for the category «A» borrowers we propose to include large enterprises (agroholdings) with positive overall financial indicators, high profitability, availability of more than 1,000 hectares of land, positive credit history, possession of liquid collateral, experience with effective use of pre-owned received preferential loans, etc.

Borrowers in the category «B» offer to assign a company with a life span of 3-5 years, which has from 50 to 1000 hectares of land, a small profit or break-even (in the first year is allowed loss-making). Such agricultural enterprises may not have a liquid collateral and a credit history in banking institutions, but all this follows a clear trend of growth and development of the economy, a gradual expansion of activity.

Of course, it's clear that B-class customers will be less attractive to banking institutions and the state, as they are more risky, which is why a banking institution can set a higher interest rate to minimize its risks, and the state - to provide a higher percentage of compensation. The implementation of this scheme will solve the dilemma of «low profitability - the lack of the possibility of obtaining a loan, the lack of the possibility of obtaining a loan, the impossibility of obtaining high profits» and will provide an expanded reproduction of the agrarian sector.

We believe that the criteria presented are of a recommendatory nature, and if the company meets three or fewer criteria, then a negative decision on lending is imposed on it if more than three criteria are positive.

In the event that a positive decision is obtained by more companies than there is the possibility of crediting on preferential terms, in other respects, in our opinion, it is necessary to take into account the history of previous loans for improved conditions and give preference to enterprises that did not have the opportunity or at least previously enjoyed state support.

Consequently, the proposed scheme will improve the situation with preferential lending to agrarian enterprises in terms of equitable distribution and use.

4. The experience of developed countries convincingly suggests that reducing government expenditures in support of agricultural producers is possible due to the efficient system of lending to agricultural enterprises through the creation of cooperative associations (agribusinesses).

Important place in the system of bank lending to the domestic agricultural sector should be taken by cooperative associations (agribusinesses), the creation of which our state pays insufficient attention. However, they have a significant need, especially for the financing of small farms and farms. Reforming the system of domestic cooperation will allow agricultural producers to function effectively in complex, first and foremost crisis, conditions, to concentrate as much as possible on agrarian capital, to manage financial flows quickly, to take into account regional features, seasonality and specialization of agricultural production.

Cooperative association (agro-society) is a form of voluntary association of

agricultural enterprises and farms based on the principle of territoriality on the basis of voluntary membership in order to create favorable conditions for their activities, providing financial and non-financial assistance to its members at the expense of share subscriptions.

Taking into account that, according to the legislation, such a unification is a non-profit organization, it will facilitate alternative support for small and medium-sized agricultural enterprises in certain regions, which will have a positive effect on food security.

The importance of lending to ensure the stability of national economies and banking systems grows significantly in the context of the global financial and economic crisis, as evidenced by IMF materials «Cooperative Banks and Financial Stability» [8].

Study of foreign experience has allowed to establish significant advantages of credit cooperation of leading Western European countries in the conditions of crisis phenomena in the world economy, namely:

- minimization of uncertainty and greater stability compared to commercial banks due to the high level of capitalization and sustainability of the resource base;
- branching system, which allows to optimize financial flows, effectively distribute risks, reduce costs, optimize the range of banking operations, maximally protect co-operative infrastructure from undesirable environmental impacts;
- a stable refinancing system (due to autonomy);
- the protection of the cooperative banks system from the domino effect, thanks to information on the real financial status of local cooperative banks concentrated at the second level [7].

In addition to crediting the current activities of farmers, cooperative associations (agribusinesses) can invest in their fixed capital and construction projects, to provide their shareholders with preferential loans at low interest rates under state financing programs. Also, most cooperative associations (agribusinesses) can purchase agricultural products, marketing agrarian products and financing operations with farm equipment.

The main advantages of creating cooperative associations (agribusinesses) in Ukraine can be considered as follows:

- greater independence of cooperative associations (agribusinesses) in making business decisions, which will lead to less risky lending operations and will in the future reduce the possibility of quick resale of collateral to other persons;
- taking into account the territoriality of the activities of cooperative associations (agro-trade associations), decisions on granting loans or other active operations are taken by management by an order of magnitude faster than employees of specialized commercial banks, which has an intricate and multilevel organizational structure in its structure;
- employees of cooperative associations (agro-trade associations) are more informed about the modern economic development of the region in which it operates

and can more accurately assess the various threats that may arise in the process of granting loans to enterprises in the region and in other active operations;

- as a rule, operating in a particular region, cooperative associations (agribusinesses) eventually create an effective network of branches and offices, which increases the quality of service provision to clients;

- the possibility of developing the fundamental principles of the activity of cooperative associations (agribusinesses) and establishing a system for monitoring compliance with them;

- the possibility to involve cooperative associations (agribusinesses) of individuals and legal entities that do not have significant temporarily free financial resources, especially in the context of constant increase of the requirements of the National Bank of Ukraine to the amount of authorized capital.

So, if a cooperative union (agro-society) is created as a limited liability company, then the requirements for its authorized capital are regular and not changed by the state regulators, and may be changed only by the decision of the founders. If the owners are more than 50 people, this can ease solving the problem of finding additional financial resources; provision of quality services to the inhabitants of the region where the agro-business community operates, which will in the future increase confidence in it and provide a more stable resource base for functioning, etc.

However, along with the benefits of functioning of cooperative associations (agro-trade unions), there are also shortcomings inherent in their activities in Ukraine, namely:

- absence of historical experience of functioning of cooperative associations (agro-trade unions) in independent Ukraine;

- complicated procedure of creation of cooperative associations (agribusinesses) in comparison with banks, which were created as joint-stock companies;

- a more complex procedure for the management of cooperative associations (agro-businesses), since all founders are equal and do not have the right to vote, which may sometimes lead to the impossibility of adopting consolidated and coordinated decisions;

- the absence of normative and legislative norms governing the activities of cooperative unions in Ukraine, taking into account the specifics of the activities of these institutions;

- Limited activity of cooperative associations (agro-trade associations) only in a certain territory, etc. [9-11].

The revival of the system of cooperative unions (agro-trade unions) in Ukraine requires the implementation of organizational and economic measures. It is the state which should promote the development of cooperative relations both through their legislative provision and through direct participation in the creation of such associations.

Thus, the use of foreign experience in the organization and functioning of credit

cooperation in agriculture for Ukraine can be a significant impetus for the emergence of the crisis situation, as well as the sustainable development of the agrarian sector of the economy. The system of cooperative associations (agribusinesses), which is widespread in Europe and has high confidence among the population, is stable and resistant to financial turmoil, promotes the development of the agrarian sector of the economy. Consequently, the study of foreign experience, especially German, French and Polish cooperative associations, shows that they are exceptionally positive in the context of the global financial and economic crisis.

5. In addition, a less-important instrument for financing agribusiness development in the conditions of limited access to loans is leasing, the benefits of which before ordinary lending are as follows [12]:

- An agricultural enterprise can lease property for an investment project without having its own funds, as in the case of lending, which requires at least 20-30% of its own resources;
- clearance of leases does not require additional collateral, as the provision of the leasing agreement is the property leased;
- leasing utilization enhances the commercial effectiveness of the investment project, in particular through tax winnings and the use of accelerated depreciation;
- leasing payments are more flexible and are determined taking into account the real possibilities of the lessee;
- the lease price may be less than the price of an ordinary loan, since the ownership of the subject of the collateral remains with the lessor, correspondingly reducing its risks.

However, for most agricultural enterprises, the use of leasing is also a rather expensive way to upgrade fixed assets due to the lack of regular payments due to seasonal agrarian activities.

Having systematized the main directions of providing financial support to agricultural enterprises of Ukraine, we consider it expedient to propose an algorithm for choosing a source of credit resources.

In accordance with the proposed algorithm, agricultural enterprises are choosing sources of credit to finance their poverty.

Consequently, synchronizing the interests of participants in bank lending to agricultural enterprises is a way to improve lending in this area, which is interested in all the participants in these relations, and especially the enterprises themselves.

Unconditional interest also has a banking institution, as agriculture during the crisis periods shows high performance, and, despite the specificity and riskiness of the inter-sectoral complex, the percentage of overdue loans granted to the agrarian sector is only 7-8% on average.

The state, which today can not finance the agro-industrial complex on its own, needs to actively promote the development of bank lending, since, first of all, the agro-industrial complex provides food security of the country, and in the second, forms a third of GDP.

Thus, the state should promote the economic interests of the creditor and the borrower-enterprise of the agro-industrial complex by regulating and mitigating the negative effects of the threats that determine the development of credit relations.

In order to ensure efficient lending to agricultural enterprises, it is necessary to eliminate the factors that slow down the process by overcoming uncertainty and minimizing risks, improving existing and developing new banking products for crediting the agrarian sector, as well as creating new sources of lending (development of credit cooperation).

So, summing up the above-mentioned, we consider it necessary to propose the proper definition of «the program of crediting agricultural enterprises in the context of providing Ukraine's food security», which should be understood as promoting the development of new credit products for the financing of agricultural enterprises in order to strengthen the food security of the individual region and the state as a whole.

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## **TRADE POLICY AND ECONOMIC DIVERSIFICATION IN NIGERIA**

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Nigeria is a resource-rich country, with about 34 different minerals, including gold, iron ore, coal and limestone. It has about 37.2 billion barrels of proven oil reserves, 187 trillion cubic feet of proven natural gas<sup>1</sup> and produces about 2.3 million barrels of oil per day. It also has about 70 million hectares of farmland. The structure of the Nigerian economy is oriented toward the production of two primary products: agricultural products and crude oil (Neszmélyi, 2014).

The Nigerian national economy faces very significant challenges. From among these, three factors seem to be the most important: the predominance of the hydrocarbon-energy sector, the backwardness of agriculture and food production and the underdevelopment of the manufacturing industry – moreover the delay of the structural shift in the economy. Since the late seventies, more than 90% of Nigeria's foreign exchange earnings come from the sale of crude oil and natural gas products. The significance of non-oil products in the export of the country was strongly reduced, practically marginalized (Adenugba & Dipo, 2013). The government recognized the significant risks of the situation:

- the export performance of the country and its foreign exchange earnings depend heavily on volatile oil prices;
- budget revenues are heavily dependent on oil extraction and export;
- hydrocarbon reserves are limited.

The diversification of the economy, but most notably of export, is of paramount importance to ensure that the budget can sustain the essential foreign exchange coverage for necessary import goods after the depletion of oil stocks.

Comparatively, poverty and inequality in Nigeria has strong regional concentrations, resulting in significant levels of regional disparity. As oil reserves

can be found mostly only in the southern region of Nigeria (The Niger-Delta Region which is made up of the following oil producing states: Abia, Akwa Ibom, Bayelsa, Cross River, Delta, Edo, Imo, Ondo and Rivers states) (Oviasuyi & Uwadiae, 2010). The one-sided economy and monocultural exports can contribute to the further deepening of the regional, social and economic disparities in the future.

The questions arise: what success did Nigeria achieve in the field of diversification? How successful are the export promotion measures? How do import regulations and investment promotion serve the development of the economy?

**Materials and methods.** This research adopts a non-experimental research design. The data used were obtained from secondary sources, such as the Federal Government of Nigeria and the International Trade Administration. Other sources: Nigeria Customs Service, Nigerian Export Promotion Council Act and the Observatory of Economic Complexity. The method used is a descriptive-analytical exploration of economic, social and political aspects and elements that influence Nigeria's foreign trade policy, and the utilization and application of relevant indices such the Economic Complexity Index and the Revealed Comparative Advantage Index.

The Economic Complexity Index (ECI) is a measure of the relative knowledge intensity of an economy by considering the knowledge intensity of the products it exports. ECI has been validated as a relevant economic measure by showing its ability to predict future economic growth. (The Observatory of Economic Complexity (a), 2017). The Revealed Comparative Advantage Index (RCA) is used in Balassa's interpretation: a country has RCA if it exports more than it normally would if all countries exported said goods equal to the share of total world trade that the product represents. (The Observatory of Economic Complexity (a), 2017)

Government strategies to promote non-oil exports. The issue of economic transformation through effective diversification has taken a centre stage in the country's economic policy since the 1970's.

#### a.) The Nigerian Export Promotion Council

The Nigerian Export Promotion Council (NEPC) was established in 1976. The functions of the council are extensive, but the most important are to:

- „promote the development and diversification of Nigeria's export trade;
- assist in promoting the development of export-oriented industries in Nigeria;
- spearhead the creation of necessary export incentives;
- actively promote the implementation of export policies and programmes of the Federal Government;
- co-ordinate and monitor export promotion activities in Nigeria.” (Nigerian Export Promotion Council Act, 2017)

To achieve these goals, the NEPC is expected to be an information hub for manufacturers and exporters; to provide assistance with most areas of export trade (e.g. administration, packaging, financing, et cetera); to undertake studies and advise and assist the government and help exhilarate the export-growth as well as

“pursue the simplification and streamlining of export procedure and documentation on a continuous basis” (Nigerian Export Promotion Council Act, 2017).

b.) The Export Expansion Grant

In 1986 the Federal Government issued the Export Incentives and Miscellaneous Provisions Act. The incentives range from tax exemption to duty drawbacks as well as other forms of grants:

- Export Development Fund (EDF);
- Export Expansion Grant (EEG);
- Export Adjustment Scheme Fund (EAS).

The only still functioning grant in 2013 was the EEG; after a revision in 2005 and administration by the Nigerian Customs Service (NCS) subsequently suspending and reactivating it 8 times between 2005 and 2013 (Deloitte, 2015).

Table 1

**Export Expansion Grant eligibility criteria for company evaluation**

Eligibility criteria	Threshold (%)	Weight (%)
Local Value Added	20	20
Local Content	35	20
Employment (Nigerian)	500 persons	20
Priority Sector	Manufacturer Only	10
Export Growth	10	25
Capital Investment Growth	10	5

Source: <http://www.tradeinfong.com/2012/10/export-expansion-grant-eeg-scoring.html>

Table 2

**Export Expansion Grant scoring key**

Scoring Key	Exporters of Finished Goods	Exporters of Semi-Processes Goods	Exporters of Commodities & Minerals
Score Band (%)	EEG Rates (%)		
≥70	30	15	10
≥50	25	10	7.5
≥25	20	5	5
≥5	15	0	0
<5	0	0	0

Source: <http://www.tradeinfong.com/2012/10/export-expansion-grant-eeg-scoring.html>

The EEG is a direct export subsidy which can range between 5-30% of the FOB value of exported goods, allowing Nigerian exporters to offer competitive prices on the world market. It is a prerequisite to repatriate the total sales revenue within 180 days (Proshare, 2015). Table 1 & Table 2 show the revised criteria for companies



to qualify for the EEG and the level of support as a percentage of the FOB value.

The application and approval of the grant is extremely complicated and bureaucratic.

After 1999 exporters received the subsidy in the form of Negotiable Duty Credit Certificates (NDCC), which could be used for import and excise duty. As other export incentive measures provide relief for duties for import inputs for export-producing companies, exporters often exchanged NDCC on discounted rates and provided banks with NDCC collateral for loan repayment. (Deloitte, 2015). In 2013 the system was revised again, but were suspended again in August 2013 due to suspected abuse. This has caused extraordinary issues, since the NSC has no longer honoured the NDCC. The repayment of loans disbursed under NDCC cover proved to be a challenge for both lender and borrower. The price advantage of Nigerian exporters has dispersed, which may have led to failures of transactions. Excise duties and customs duties had to be paid with currency, that reflected in the pricing structure of imported goods (Deloitte, 2015). In the spring of 2017 the system was re-established, but the NDCC was replaced by the Export Credit Certificates (ECC) (KPMG, 2017).

#### c.) Nigerian Export Processing Zone (EPZ)

The Federal Government of Nigeria has passed a Free Zone Law to create a business-friendly environment benefiting from various economic incentives.

„These incentives, established by Act No. 63 of 1992 and which have been improved even more in subsequent legislation, are the following:

- Complete holiday from all federal, state and local government taxes, rates, and levies.

- Duty free importation of capital goods, machinery/components, spare parts, raw materials and consumable items in the zones.

- 100% foreign ownership of investments.

- 100% repatriation of capital, profits and dividends.

- Waiver of all imports and export licenses and on all expatriate quotas.

- One-stop approvals for permits, operating license and incorporation papers.

- Permission to sell 100% of goods into the domestic market (However, when selling into the domestic market, applicable customs duty on imported raw material shall apply).

- For prohibited items in the custom territory, free zone goods are allowed for sale provided such goods meet the requirement of up to 35% domestic value addition.

- Waiver on all expatriate quotas for companies operating in the zones.

- Minimize delays in the movement of goods and services” (Nigeria Export Processing Zones Authority, 2017).

The obvious purpose of the creation of EPZ is to attract FDI. The duty-free availability of capital goods, consumer goods, components, machinery, equipment and furniture enable the establishing of production at reduced cost. The duty and

tax-free import of raw materials for goods destined for re-export avoids the lengthy procedures for claiming drawback of duty previously paid and the costs of financing these duties. The waiver of all import and export licenses spares time and reduces cost for license applications and enables the EPZ manufacturers to use imported raw materials prohibited for domestic manufacturers. All these exemptions result in lower costs for EPZ exporters and increases the possibility of export at competitive prices.

The declared reason for import bans is to facilitate the growth of domestic production of prohibited goods. The permit to sell the prohibited goods in-country with 35% domestic value addition in the EPZ seems to harmonize with this goal. However, the permission to sell these goods in the domestic market raises concerns. Along with exemption from all taxes, rates and levies, this creates a significant competitive advantage in the national market as well as a budget deficit. Complete holiday from taxes is a too high price to pay to appeal to investors. The regulations are inconsistent. The restrictions of the local content regulation lose significance, if foreign capital can avoid it by manufacturing within an EPZ. The One-stop approvals may have significant attractiveness in Nigeria's overly bureaucratic environment. Overall, EPZs gained momentum slowly and most of them are still connected to the oil industry.

#### d.) Manufacture-in-Bond Scheme

The program seeks to eliminate the adverse effects of the restrictions imposed by investment and import regulations on the expansion of export-oriented production.

This scheme is designed to encourage manufacturers to import duty free raw material inputs and other intermediate products – whether banned or not – for the production of goods for export, backed by a Bond issued by any recognized Commercial Bank, Merchant Bank, Insurance Company or the Nigerian Export-Import (NEXIM) Bank. The bond will be discharged after evidence of exportation and repatriation of foreign proceeds have been produced. (Nigeria Customs Service (a), 2017) (Federal Government of Nigeria, 2005)

It allows exporters to import the raw materials, semi-finished products and packaging materials for their production, regardless of any import ban. Companies do not need to finance reclaimable import duties, however, have to cover the costs of issuing the guarantee. This scheme was suspended and after shortly reinstated (Bivbere, 2006).

Import policy. Nigeria heavily restricts import with a multitude of different sanctions and barriers. (Nigeria Customs Service (b), 2017) It bans bovine meat and offal as well as most other sources of meat (pork, sheep, goats as well as edible offal of mules, asses and horses). The justification is the prevention of bovine spongiform encephalopathy, however, the import of these items is also banned from countries free of the disease. It is a similar case with live and dead poultry (except day-old chicks), with the stated rationale being avian influenza. These bans are excessive compared to international standards and most likely serve as protection for the

national industry. Other than food, Nigeria also bans certain drugs, water, textile, footwear, used motor vehicles older than 15 years, furniture etc. These include those 41 items excluded from official foreign exchange windows for import. (Nigeria Customs Service (b), 2017). Other than outright bans, other kind of obstructions are also present. All food, cosmetic, pesticide and drug imports are required to be certified to be safe for human consumption by national authorities, regardless of origin. However, Nigeria does not have the necessary capacity to carry out these inspections in a timely manner, which resulted in multiple tons of food spoiling at the border (Froman, 2015).

As a member of ECOWAS (Economic Community of West African States), Nigeria aimed to harmonize its Common External Tariff (CET) Book with the proposed tariff regime, but in some cases, unilaterally raises the duty on some tariff lines, in direct opposition of the ECOWAS CET. For example, no effective tariff rates should exceed 70 percent according to ECOWAS CET, but Nigeria has 15 tariff lines over this threshold, highest being tobacco (135 percent for cigars and cigarettes; 85 percent for tobacco and other tobacco products), rice (120 percent), wheat flour (100 percent), and sugar (80 percent) (Froman, 2015). The declared aim of a strong import limitation is to develop domestic production. In markets protected by high customs duties and bans, domestic producers can sell at an elevated price level, enabling growth in production. However, the borders of the country are porous, leading to the smuggling of illicit products and the flowering of the black market. The high price level is also guaranteed, although the surplus profit does not aid further growth and narrows down the scope of potential buyers and the state loses potential revenue collected through the use of tariff instruments.

FDI Policy – The issue of Local Content. The Nigerian government tries to not just attract foreign direct investors, but with mandated local content regulations, make them a propelling force in the growth and diversification of the economy. The government established a law in the Oil and Gas sector in 2010 titled Oil and Gas Content Development Act, which will pose as a model for future implementations in other areas of trade. It mandates local content in the industry, within its widest definition, meaning any business conducted with or in the sector. It requires international companies to use a Nigerian Bank for at least 10 percent of their annual profit. Whenever possible, positions should be filled with Nigerian citizens – finance and human resources positions are practically reserved for nationals. Foreign worker allotment has to be negotiated individually by companies with The National Petroleum Investment and Management Services (NAPIMS) and positions held by foreigners first have to be proven to require expertise not found in the Nigerian labour pool. Furthermore, relocation of said workers also face challenges such as unnecessarily long waiting time for approval of NAPIMS and by visa authorities. Companies are also required to issue a “Nigerian Content Plan” that establishes how local content can be increased within operations. This plan has to be approved and followed – failure to do so can mean fines up to 4 percent of the contract value

or overall contract cancellation.

In December 2013, the National Information Technology Development Agency (NITDA) issued the Guidelines for Nigerian Content Development in the Information and Communications Technology sector. Multinational companies are obligated to source hardware products and personnel for cell towers as well as base stations and host data locally; computer hardware can only be procured from NITDA-approved original equipment manufacturers by government agencies (Froman, 2015).

The guidelines also include other restrictions, such as mandatory maintenance of research and development in-country, but more alarmingly localization processes require the disclosure of source data as a necessity for business operations. These protocols are not yet fully implemented, partially due to the fact that major U.S. companies objected to the application of some of the guidelines. (International Trade Administration (a), 2017). In both the Oil and Gas and the Information and Communications Technology sector, these local content provisions are the cause for significant dissatisfaction from the affected companies. The rules and guidelines themselves are particularly restrictive and U.S. companies have expressed concerns that the administrative processes are subjective and lack full transparency (International Trade Administration (b), 2017), which is a high concern in Nigeria, since corruption is still a prominent problem (Froman, 2015).

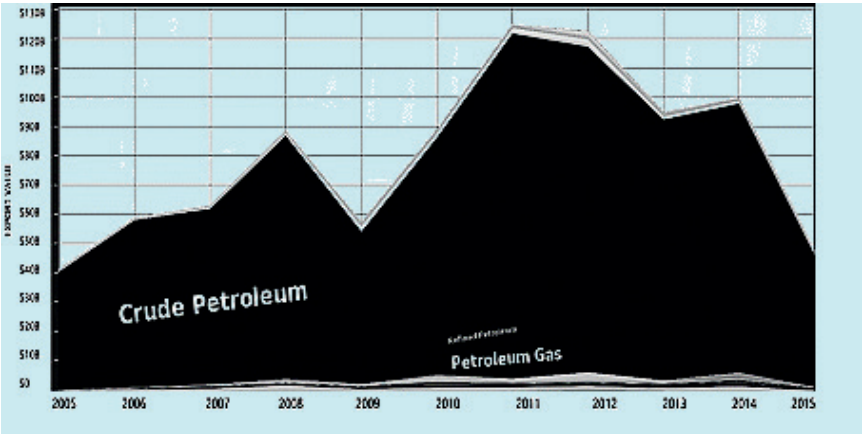


Fig. 1. Nigeria’s export between 2005 and 2015, stacked  
*Source: The Observatory of Economic Complexity (c), 2017*

Nigeria’s foreign trade between 2005 and 2015. An examination of Nigeria’s export performance between 2005 and 2015 show no material change in exported goods. The economy still depends on hydrocarbons. Nigeria ranked as the 120th-121st on the Economic Complexity Index between 2005 and 2010, however, by 2014

the economy’s complexity improved significantly, ranking as 103rd with 33 goods exported with higher than 1 Revealed Competitive Advantage (The Observatory of Economic Complexity (b), 2017). As shown on Figure 1, the ratio of hydrocarbons in export exceeded 90% in the examined period. Other than oil, Nigeria is rich in other natural resources.

The climate, soil conditions and a long coastline provide abundant opportunities to connect to the global value chain (Ogunleye, 2014). Cocoa, whose RCA index varies between 11 and 38, is considered a traditional export item. Exports of processed cocoa products compared to crude cocoa beans are very low.

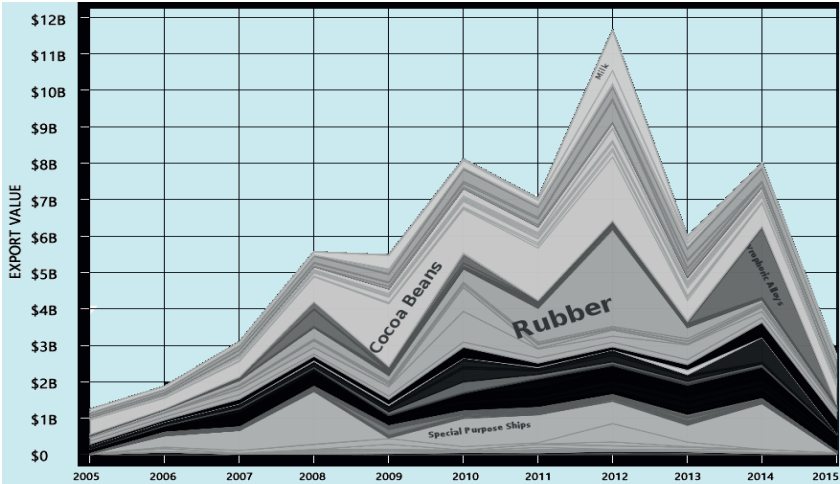


Fig. 2. Nigeria’s export between 2005 and 2015, oil and gas omitted, stacked  
*Source: The Observatory of Economic Complexity (c), 2017*

Exports of special purpose ships, which have the highest added value ratio among the alternative export items, have considerable potential. Among non-oil products, these vessels are the most stable export goods, although their RCA index ranges from 2 to 12. Unfortunately, the lack of petrodollars has also significantly reduced the potential of this industry in 2015. Tanned goat hide’s RCA index hasn’t dropped below 25 even in the worst years; in 2010 it exceeded 77. Other animal leathers can also be suitable export items. Other oily seeds are also promising export products with an average RCA of approximately 10. Rubber, pyrophoric alloy and milk also brought significant revenue to the non-oil sector. Overall, the performance of non-oil export products fluctuates immensely, reflecting the inconsistent and inadequate export policy.

The Authorized Economic Operator (AEO) programme. Polner (2010) pointed out that Pillar Two of the WCO (World Customs Organisation) SAFE Framework

of Standards to Secure and Facilitate Global Trade provides global standards for launching an Authorized Economic Operator (AEO) programme. In addition, many WCO Members who have established AEO programmes are seeking to formalize AEO mutual recognition arrangements (MRAs) with other Customs administrations. The SAFE AEO is rooted in the revised Kyoto Convention, which contains standards on “authorized persons”, and national programmes. The SAFE AEO also has common elements with customs compliance programmes, which are focused on fiscal rather than security criteria. The SAFE Framework defines an AEO as: “a party involved in the international movement of goods in whatever function that has been approved by or on behalf of a national Customs Administration as complying with WCO or equivalent supply chain security standards. AEOs include inter alia manufacturers, importers, exporters, brokers, carriers, consolidators, intermediaries, ports, airports, terminal operators, integrated operators, warehouses, distributors”. Therefore, the SAFE AEO programme is intended to include all economic operators to enhance security along all points of the supply chain (Polner, 2010). In Africa still not too many countries have launched their AEO programmes. SADC Members are working to develop an AEO programme for the region. Namibia, Botswana and South Africa are working together on a number of issues in AEO design and implementation. The East African Community (EAC), which comprises Burundi, Kenya, Rwanda, Tanzania and Uganda are also working to develop a regional AEO programme (Polner, 2010).

**Conclusion and suggestions.** There is no dispute among researchers about the data and facts regarding Nigeria, and there is a wide consensus on severity of the situation. Due to the specificity of the subject, the authors have not found literature being in contradiction with the applied methods or with the conclusions drawn from the data. Nigeria still can be regarded as a monocultural economy. A diversification process has started since 2005, but has yet to mature into a significant impact on the economy. There is no breakout point outlined, though there are prospective sectors with high RCA. In principle, export promotion measures meet the objectives, however the mechanism of practical implementation is inefficient and malfunctioning. It should be noted that the EEG, while being responsible for the success of export promotion, is not an appropriate long-term strategy. Providing direct export subsidies, in addition to violating WTO rules, do not create any long-term advantage in the supported industry, merely eliminates the current competitive disadvantage. Resources should be used to modernize production and increase added value in order to have a substantive, actual competitive advantage.

The Nigerian political leadership and economic decision-makers have already recognized the need to re-structure the economy, and to focus on the food and agriculture and the manufacturing sector. All these are of key importance in order to alleviate frictions and tensions among the various ethnic and religious groups of Nigeria, and to further develop their peaceful and long-standing co-existence in the country (Neszmélyi, 2016).

The main reasons for failure are too complicated: regulations, constant revisions, high unpredictability due to incessant modifications and excessively bureaucratic access. Export incentives and other economic development policies are not harmonized. On one hand, there are strict regulations, on the other the government itself offers the loophole. Control of export items is superfluous, it does not increase trust, but multiplies costs and the duration of export administration. Import control and investment control set administrative barriers instead of operating with economic incentives. The rigid local content regulations, though the underlying intentions are praiseworthy, discourage foreign direct investors. Extending the oil industry model to other industries could be perilous for investor attraction and retainment. The regulations are unclear, occasionally in direct opposition to WTO standards, use is protracted, inconsistent and inadequate, leaving scope for already high-levels of corruption, which makes the business environment uncertain.

Contrary to utilizing import bans that are difficult to impose, it would be preferable to apply safeguard duties or quantitative restrictions in the sectors in question. Instead of compelling mandatory local content, Nigeria could use economic incentives such as tax relief or other discounts for co-operation with the directive and apply surcharges for non-compliant businesses. The most beneficial action would be the consistent implementation of a transparent, well-thought-out, predictable and long-term regulation. It would be beneficial to leave the control to the free market regarding export transactions, and oversee the consistent and uniform application of rules by officials – this can maintain a high-risk but predictable business environment and possibly reduce corruption. The introduction of the AEO program would increase security as well as confidence and reduce bureaucracy. In its closer region – in West Africa – Nigeria could be pioneer in this respect as no country has launched this programme yet.

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## **PECULIARITIES OF CLASSIFICATION OF INFORMATION SECURITY THREATS FOR DIFFERENT SUBJECTS OF INFORMATION RELATIONS**

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The real world geopolitical space and the state's internal relations are formed in conditions of information confrontation. This problem is especially urgent for the Ukrainian business entities and a country as a whole. Despite the uncertainty of the economic vector, the political instability, the instability of information space, Ukraine is under systematic information pressure, which is realized by the occurrence of circumstances or events that may cause violations of information security policy, changes in the properties of information or damage to the automated system. Actually, such events or the potential possibility of their occurrence are threats to information security.

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space, Ukraine is under systematic information pressure, which is realized by the occurrence of circumstances or events that may cause violations of information security policy, changes in the properties of information or damage to the automated system. Actually, such events or the potential possibility of their occurrence are threats to information security.

Numerous scientific works of Artemov A., Bishop M., Gliedman C., Horbulin V., Dodonov O., Lande D., Kosogov O., Tuskov M., Semenov V. and other national and foreign scholars are devoted to the determination of the essence of threats to information security and information security. However, the classification of threats to information security, acceptable to practical use in Ukraine, does not exist either at the theoretical, or the practical and legislative level.

In general, any threat [4] is a potentially possible event, action, process or phenomenon that may cause damage to someone else's interests. Obviously, a threat is considered to be one of the key concepts in the field of information security.

Therefore, the Law of Ukraine "On National Security of Ukraine" states that the threat of information security is an attempt to manipulate the public consciousness, in particular by disseminating unreliable, incomplete or biased information. Additionally, other threats include:

- any slight manifestation of restriction of freedom of speech and access of citizens to information;
- the distribution by the media of a cult of violence, cruelty, pornography;
- computer crime and computer terrorism;
- the disclosure of information constituting state secrets, as well as confidential information that is the property of the state or is aimed at meeting the needs and national interests of society and the state [1].

In the Doctrine of Information Security of Ukraine, signed by the President of Ukraine in July 2009, the following threats to information security of the country are clearly defined:

- distribution of distorted, unreliable and preconceived information in the global information space that harms the national interests of Ukraine;
- external destructive information impact on the public consciousness through the media, as well as the Internet;
- negative information effects aimed at undermining the constitutional order, sovereignty, territorial integrity and inviolability of Ukraine's borders;
- use of mass media and the Internet for propaganda of separatism by ethnic, verbal, religious and other features [2].

In May 2018, the Law of Ukraine "On the Basic Principles of Cyber Security of Ukraine" came into force, which noted that any business entity could be exposed to the cyber threats as a new kind of information danger. Threats of this nature are the existing and potentially possible phenomena and factors that pose a threat to Ukraine's vital national interests in cyberspace, and also have a negative impact on the current state of cybersecurity of the country [3].

Thus, at the legislative level, the issues of defining the nature of threats, their classification and determining the directions for their prevention are considered fragmentarily and at the state level only. As for micro-level entities, the problematic of identifying threats to information security is either considered at the level of theoretical generalizations of individual researchers and research teams, or at the empirical level of business entities.

Consideration of different points of view regarding the essence of information security threats [4-12] allows us to conclude that at present there is no well-founded definition of the essence of information security threats and their unified classification.

On the basis of generalization of theoretical studies, it is worthwhile to note that threats to information security can be either real or those that have already manifested themselves in their negative, destructive impact on the security object, and potential, that is, their negative influence can manifest itself in numerous ways in the near or distant future.

The most common classification of threats to information security is related to the sources caused by human factors, hacking and malicious software and those, caused by natural rather than anthropogenic factors.

“Human factor” (also known as the anthropogenic sources of threats to information security) is related to the subjects whose actions can be qualified as an intentional or accidental violation or a crime. This group of threats is the most voluminous and is of the greatest interest from the point of view of organizing protection, since the actions of the subject can always be forecasted, evaluated and taken adequately. Counteraction methods in this case are manageable and directly depend on the requirements for the organization of information protection.

However, in addition to deliberate violations in this group, it is also necessary to include “unintentional” violations of information security. According to the statistical data provided by LETA [11], these are as follows:

- every fourth user leaves an opportunity for the malicious intruders to enter the corporate network;
- every second user is not familiar with the rules of information security;
- 2 out of 3 users visit potentially dangerous sites from a desktop PC;
- 1/3 of users store their passwords in an easily accessible place;
- 5% of employees are ready to transfer confidential information to third parties;
- over 60% of mobile phones are not password-protected;
- every third employee constantly uses the same password when registering on the websites;
- 8 out of 10 users do not destroy media containing corporate information.

On the contrary, the second group of threats (i.e. “hacking and malicious software”) contains sources of threats, which are determined by man’s technocratic activity and the development of civilization. These sources of threats are less predictable, which directly depend on the properties of the technology and therefore

require special attention. This class of sources of threats to information security is especially topical, because in modern conditions experts expect an increase in the number of man-made disasters caused by physical and moral aging of the technical park of the equipment used, as well as the lack of resources for its renovation.

The third group of sources of threats includes non-anthropogenic factors that combine circumstances that create an insuperable force, that is, those circumstances that are objective and absolute ones. These include natural disasters or other circumstances that can not be foreseen or prevented or possible to provide, but impossible to prevent. Such sources of threats are completely incalculable in forecasting and therefore measures of protection against them must be applied continuously.

The classification of threats to information security that deserves attention, is offered by VPS.house [12]. This classification is based on the main characteristics and properties of information [6] (See Figure 1).

Among the main factors of influence Artemov A. V. proposes to distinguish the following threats, which cause information losses and lead to various types of harm and increase in losses from illegal actions:

- accidents that cause the failure of equipment and the loss of information resources (fires, explosions, accidents, collisions, falls, exposure to chemical or physical substances);
- breakdown of the elements of information processing equipment;
- effects of natural phenomena (floods, storms, lightning, earthquakes);
- theft of tangible assets and intentional damage to these assets;
- crashes and failure of hardware, software and databases;
- errors in the accumulation, storage, transmission and use of information;
- errors of perception, reading, interpretation of the content of information, compliance with the rules, as well as errors that arise due to inability, obstacles, failures and distortions of individual elements and signs or messages in general;
- operating errors: violation of protection, file overflow, data management language errors, errors in the preparation and input of information, operating system errors, programming, hardware errors, instruction interpretation errors, skipping operations, etc.;
- conceptual errors of implementation;
- malicious acts in the material sphere;
- disclosure of information;
- social losses (liberation, strike, etc.) [4].

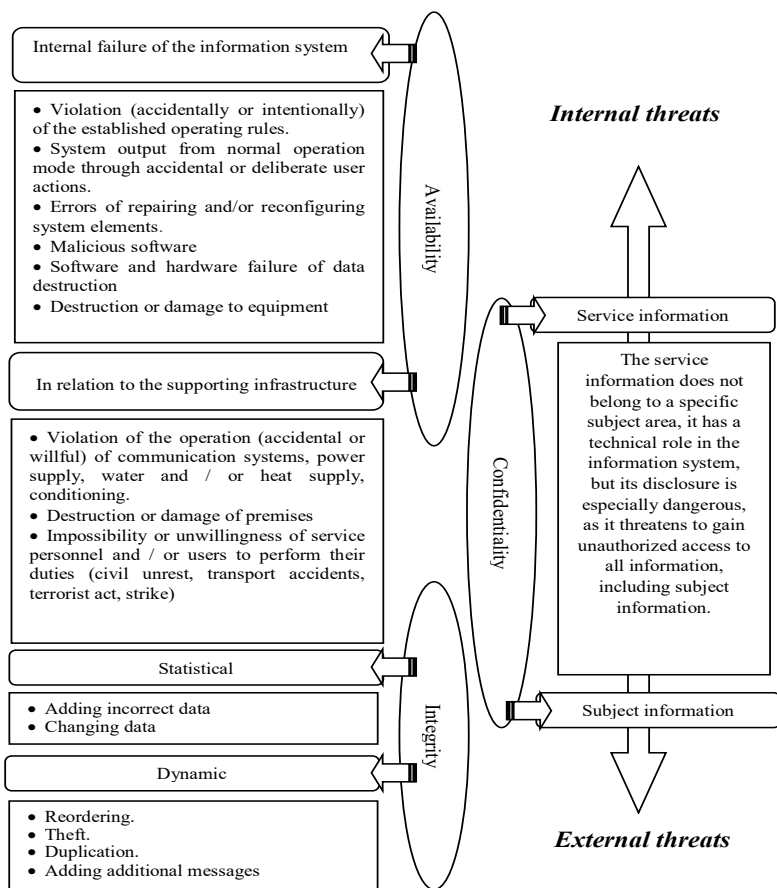


Fig. 1. Classification of types of threats to information security [developed by author on the basis of sources: 5, 6, 12]

Representatives “Searchinform”, a leading company-developer of information security tools, from a practical point of view determine the following groups of vulnerabilities in relation to threats to information security (Table 1).

Based on the generalization of the views of scientists and practitioners to the problem of identifying threats to information security, in this study, under the threat of the object of information security, it is proposed to understand a set of factors and conditions of a subjective nature that arise in the process of interaction of various objects (or parts thereof) and are capable of adversely affecting a specific object information security. Particular attention in this aspect is focused on subjectivism, because both objective and accidental threats to information security arise due to

inability, unwillingness, inattention to results, lack of competence or experience of a specific individual as a subject.

*Table 1*

**Groups of vulnerabilities in relation to information security threats [grouped by the author on the basis of sources: 4, 10, 11]**

Groups of vulnerabilities	Information security threats	Characteristics of factors
<b>Random types of vulnerabilities</b> A group of factors that depend on unforeseen circumstances and the characteristics of the environment of the information environment. They are almost impossible to provide in the information space, but it is important to be ready for their rapid elimination. Such threats can be eliminated through engineering and technical inspection.	1. Failures of systems	<ul style="list-style-type: none"> <li>• malfunctions of technical facilities at various levels of processing and storage of information (including those that are responsible for the operability of the system and for controlling access to it);</li> <li>• malfunctions and aging of individual elements of the system;</li> <li>• malfunctions of various software that supports all links in the chain of information storage and processing;</li> <li>• interruptions in the operation of auxiliary equipment of information systems;</li> </ul>
	2. Threats that weaken the information security	<ul style="list-style-type: none"> <li>• damage to communications systems such as water supply or power supply, etc..;</li> <li>• malfunctions in the operation of protective devices (fences, floors in the house, equipment cases where the information is stored);</li> </ul>
<b>Objective types of vulnerabilities</b> A group of factors directly depends on the technical construction of equipment at the site, which requires appropriate protection. A complete disposal of these factors is impossible, but their partial elimination is achieved with the help of engineering techniques.	1. Threats that are associated with technical means of radiation	<ul style="list-style-type: none"> <li>• electromagnetic techniques;</li> <li>• sound options;</li> <li>• electrical techniques;</li> </ul>
	2. Activating threats	<ul style="list-style-type: none"> <li>• malware, illegal programs, technological exits from programs and other program bags;</li> <li>• "hardware bags";</li> </ul>
	3. Threats caused by features of an object under protection	<ul style="list-style-type: none"> <li>• location of the object (visibility and absence of a controlled zone around the information object, presence of vibration or sound reflecting elements around the object, presence of remote parts of the object);</li> <li>• organization of information exchange channels;</li> </ul>
	4. Threats, depending on the characteristics of the individual elements or carriers	<ul style="list-style-type: none"> <li>• individual elements with electro-acoustic modifications (transformers, telephone devices, microphones and loudspeakers, inductors);</li> <li>• various means that fall under the influence of the electromagnetic field (carriers, microcircuits and other elements);</li> </ul>

<p><b>Subjective types of vulnerabilities</b></p> <p>A group of factors in most cases is the result of incorrect actions by employees at the level of developing information storage and protection systems.</p>	<p>1. Threats caused by inaccuracies and gross errors that violate information security</p>	<ul style="list-style-type: none"> <li>• at the stage of downloading the finished software or preliminary development of algorithms, as well as at the time of its use;</li> <li>• at the stage of managing programs and information systems;</li> <li>• when using technical equipment (at the stage of switching on or off, operation of devices for transmitting or receiving information);</li> </ul>
	<p>2. Threats caused by system disruption in the information space</p>	<ul style="list-style-type: none"> <li>• violation of the regime for the protection of personal data (the problem is created by laid-off employees or active employees during off-hours that gain unauthorized access to the system);</li> <li>• violation of the storage and security of information (when accessing the facility or technical devices);</li> <li>• violation when working with technical devices (these can be related to the violation in energy saving or provision of equipment);</li> <li>• violation when working with data (information conversion, storage, search and destruction of data, elimination of defects and inaccuracies).</li> </ul>

The distributions of the groups of threats to information security considered by us are rather arbitrary one, and require integration with other threat classifications. This explains the need to combine real and potential threats, threats that arise at different levels of management (international, national, regional and local one), and threats to information security caused by anthropogenic and non-anthropogenic factors (not excluding subjectivism).

Based on the aforementioned findings of the study, it is rather important to build a corresponding model for identifying threats to information security, taking into account the following components: actual threats, sources of threats, information attacks, information security objects, vulnerabilities of the information security object and countermeasures.

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## INVESTMENTS IN THE DEVELOPMENT OF GRAIN PRODUCTION IN THE POLTAVA REGION

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Transformational processes in the economy of the agrarian sector of Ukraine, the change in the form of organization of labor and ownership of capital: fixed assets, land, labor, changes in the forms of management and the structure of production of agricultural enterprises, including the economy of the population, the transition of



the economy to an innovative development path led to the activation of investment processes and increased investment in the development of leading industries and, in particular, grain production.

The soil and climatic conditions, the production potential of agro-formations in Poltava, the genetic capabilities of the current assortment of varieties of grain crops, with full resource support and strict observance of the technology of their cultivation, enable them to obtain their high yields almost every year.

Grain production in all categories of farms in the Poltava region increased by 39.8% in the period under study and amounted to 5363 thousand tons in 2015, changing the ratio of grain production to farm categories. If its main volumes were concentrated in 1990 in agricultural enterprises, in recent years they have increased the volumes of their production of the population's economy. Their share in the total grain production in 2015 was 19.1% (Table 1).

*Table 1*

**Dynamics of grain production by categories of farms  
in the Poltava region [1, p. 215]**

Year	All categories farms		including:			
			agricultural enterprises		enterprises of the population	
	thousand tons	in % by 1990	thousand tons	share in total production	thousand tons	share in total production
1990	3450	100,0	3338	96,7	112	3,2
1995	2016	64,0	1823	82,5	193	8,7
2000	1408	40,8	1170	83,1	238	16,9
2005	2851	82,6	2283	80,0	568	20,0
2008	4531	131,3	3790	83,6	741	16,4
2009	3830	111,0	3192	83,3	638	16,7
2010	2854	82,7	2355	82,5	499	17,5
2011	5055	146,5	4332	85,7	723	14,3
2012	3645	148,8	2959	81,2	687	18,8
2013	5640	163,4	4720	83,7	920	16,3
2014	4822	139,8	3938	81,7	884	18,3
2015	5363	155,4	4337	80,9	1026	19,1

The need for investment in the grain production of agricultural enterprises is caused, in particular, by the need to replace the obsolete material and technical base, especially the main means of production, its improvement or modernization. It is important to note that in terms of the level of the provision of agriculture with material and technical resources, Ukraine lags behind the developed countries of the world. The quantity and quality of fixed assets does not meet the technological

need. On average in Ukraine per hectare of agricultural land accounts for 5-7 times less of fixed assets than in agricultural enterprises with the existing material and technical base [4].

Grain production in the Poltava region is one of the most important industries, provides agricultural enterprises with significant cash receipts and incomes – an important source of investment.

Analysis of investment in the economy of the Poltava region for the period 2010-2015. Evidence of their growth over the years at different rates (Table 2).

*Table 2*

**Volumes of investment in the fixed capital of agriculture  
in the Poltava region [1, p.26]**

indicators	Year					year 2015 in % by 2010 p.
	2010	2011	2012	2014	2015	
Investments in fixed assets, total, mln. UAH	6289	7859	10217	8827	8337	132,6
of them:	845	1259	1579	1578	2020	238,9
including: plant growing, mln. UAH	373	731	1153	1128	1462	in 3,9 times
of which investments for the acquisition of fixed assets for grain production, UAH million	314	394	541	296	332	105,5
per 1 hectare of sown area of grain, UAH	220	398	569	431	355	161,3

Investments in the agrarian sector increased more rapidly than in the whole region. So the total amount of investments increased by 32.6%, while in agriculture, hunting and forestry – 2.4 times. This changed their share in the total amount. If the amount of investment in 2010, the agricultural sector was 0.8 billion. UAH with a share 13,4%, then in 2015, respectively,

2 billion and with a share 24.2%. The main volumes of investments are directed to the development of the crop sector, during the period under review they increased 3.9-fold and in 2015 amounted to 1462 million UAH. The development of the crop sector accounts for more than 70% of the total investment in the fixed capital of agriculture, including in the calculation of 1 hectare of crops – 850.5 UAH. In terms of unit area of grain, the volume of investment over the years is also increasing.

According to the Department of Agro-Industrial Development of the Poltava region, the volume of investments for the acquisition of fixed assets for grain production grew by years, but not at the same pace. The largest amount during the period under study was in 2012 and amounted to 541.3 million UAH in 2015, it decreased to 332 million UAH, per 1 hectare of grain area under crops was 355.5 UAH.

The volume of investments in technical renewal of grain production in 2015 amounted to 332.0 million UAH, which is 17.4 thousand UAH (5.5%) more compared to 2010. Accordingly, the volume of investments per 1 ha of cereals for 19.4 UAH or 5.7% (fig. 1).

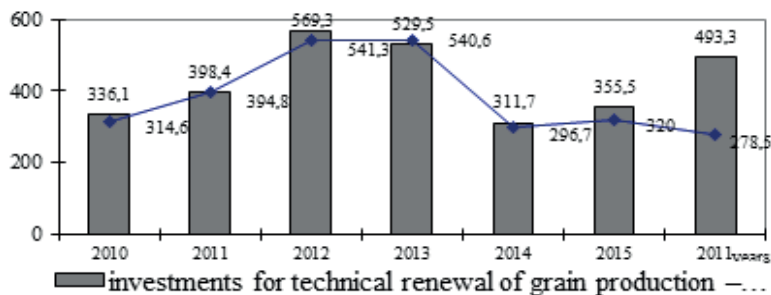


Fig. 1 Dynamics of investments in technical renewal of grain production of agricultural enterprises in the Poltava region in 2010 – 2015, mln. UAH.

For the cultivation of grain crops by the agricultural enterprises of the region during the study period, 5686 units were purchased. a variety of equipment, including: tractors – 1761 units, combine harvesters – 404 units, maize harvesters – 42 units, harvesters – 178 units, seeding equipment – 470 units.

487 units of technics were purchased in 2015., it is 2 times less than in 2010, from them – domestic production – 200 units. (41.1%) to the amount of 43.7 million UAH and foreign production – 287 units (58,9%) for the total amount of 288,300,000 UAH.

The structure of investment sources for the acquisition of domestic equipment varies by year. So, in 2005, the largest share, namely 79% borrowed their own funds and loans to enterprises under the terms of financial leasing purchased 8.1% of the equipment, with a partial cost compensation – 7.5%. In 2015, the share of equipment purchased for own funds decreased to 13.2%, due to a decrease in its acquisition.

The structure of investments by sources of their financing changes annually, especially for the change in the technology of the obtained in credit that is on the instincts of financial leasing. So, during the period under study, the amount of domestic equipment purchased for credit facilities decreased by 94.2%, in 2015 it was 0.7% (6 units). This is explained by the increase in the interest rate for the use of loans.

The amount of investment invested in the technical renewal of the agricultural enterprises of the region during 2010-2015 is increased by 2400000 UAH or 0.7%. However, the number of acquired units decreased more than in 2 times, amounting to only 510 units in 2015, which is explained by a significant increase in the cost of equipment, especially of foreign production.

The powerful farms of Ukraine, including the Poltava region, are increasingly purchasing foreign high-performance combine harvesters from the following manufacturers: John Deere, Claas, Case, Massey Fergusson, New Holland and others that provide the necessary technological and operational level of production. They are much more powerful, reliable, more versatile, equipped with electronic systems, including fuel consumption, control of aggregate control, comfortable ones. However, for all positive qualities, powerful technology has a significant drawback – a high price (Fig. 2).

The cost of purchased foreign agricultural machinery in 2010 - 2015 in the Poltava region is 2-7 times higher than the cost of domestic cars. Taking into account this fact, when the technical and technological complex is being formed at the expense of foreign machines, the need for investments grows 2 times. In the world of agriculture, there are 50 hectares of arable land per tractor.

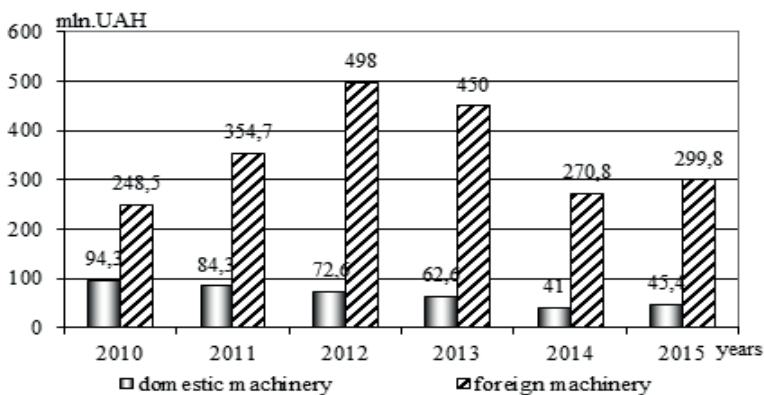


Fig. 2 Cost of domestic and foreign equipment purchased by agricultural enterprises of the Poltava region, 2010 - 2015, mln. UAH.

The average power of the tractor engine during the period under review increased by 9.7 kW (12.1%) and amounted to 89.9 kW in 2015, which is due to the innovative development of machine building and the increase in the share of foreign equipment purchases.

Due to the heavy load on the grain harvester, the farms are attracted by the technology of large companies, the costs for which are growing in the farms in the form of «payment for third-party organizations.»

Investments are also required by the conservation of soil fertility and increased productivity. Unsustainable long-term exploitation of land resources without due regard for soil and climatic features, intensive processing, increasing the size of enterprises and fields lead to depletion and degradation of soils, a decrease in the content of humus and nutrients in them. At the end of 2013, the area of disturbed

land in Ukraine was 146.5 thousand hectares, spent – 46.1 thousand hectares.

Every five years the soils of Ukraine lose 0,04-0,05% humus, 4-7 mg / kg mobile phosphorus compounds and

5-7 mg / kg potassium. During a year – 300-350 kg of humus,

2,6-4,5 kg of mobile compounds of phosphorus and 3,2-4,5 kg of potassium [2, p. 84]. The main factors of reducing the content of humus are soil erosion and mineralization of organic matter, is enhanced by the introduction of low rates of organic fertilizers in the growth of mineral fertilizers.

According to the results of agrochemical monitoring of agricultural lands in Poltava oblast, the fertility of the land deteriorates every year. The content of humus in the soil is an integral indicator of the level of its effective fertility [2, p. 85].

The level of humus in agricultural soils of Poltava Oblast farms decreased by 0.5 percentage points during the period under study and amounted to 3.18% in 2015.

The protection of the land includes the costs for the construction of anti-erosion hydraulic structures (hills, ditches, ramparts, anti-erosion lakes, spillway structures, bank protectors) and plowed land heavily degraded and contaminated with harmful substances [5, p. 109].

The number of measures for the protection of land in Ukraine is decreasing, in the Poltava region too, during 2010 – 2014. decreased by 3 times, including 1 hectare of arable land – by 2.3 thousand UAH, of which for grain – by 5,1 thousand UAH. There is a decrease in the cost of development, improvement of land and a reduction in the cost of working land management projects for land protection. The cost of conducting normative monetary assessment of land also decreased by 1062.2 thousand UAH or 93.1%.

So, in the Poltava region there is sufficient economic potential for activating investment processes in grain production. According to studies of economists, there are three main reasons that prevent the inflow of investments into the grain-producing subcomplex of the country. The first is a weak protection of the rights of the investor, because it is quite difficult to realize the right to protect both property rights and business interests. The second reason is very low infrastructural opportunities: the stock and insurance markets are poorly developed; weak venture, investment, pension, innovative companies; virtually no investment tools. The third reason is that it is almost impossible to predict the development of the economic situation in the subcomplex [3, p. 92]. In addition, the high price of loans, their inaccessibility is the main reason, the main source of financing investments in the logistics of grain production is the company's own funds, although a significant amount of agricultural equipment is purchased on loans. Therefore, it is important to change the terms of lending to agricultural producers.

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## **AN OVERVIEW OF THE MNB'S ACTIVITIES SINCE THE ESTABLISHMENT OF THE TWO-TIER BANKING SYSTEM TILL TODAY'S**

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In advanced market economies central banks are in charge for and conduct monetary policy. Monetary policy is classified as a pillar of financial policy. Monetary policy is the aggregate of arrangements and instruments that affect economy through influencing demand and supply for money.

During the first steps to Hungary's transition to market economy, 1987 saw the formation of a two-tier banking system again. The Magyar Nemzeti Bank set foot to become liable for central bank functions standard in market economies. The development of MNB's activities in the forthcoming decades was determined by the state of the Hungarian economy, government initiatives, international requirements, and economic theory.

This paper reviews the changes the Central Bank, the conductor of monetary policy, has undergone and how its targeting framework and application of policy instruments changed during the last 30 years and to what extent it contributed to the growth of the Hungarian economy.

Establishment of the modern central bank. Before the two-tier bank system established in 1987, there had been indirectly controlled economy in place in Hungary, hence it was not possible to put a central bank fully compliant with market economy practices in operation at once. The economic and institutional environment restrained the central bank's scope of activities considerably, although inflation rate increased to the two-digit range in that period.

1991 witnessed a change in the MNB's status, targeting framework, policy

instruments, and tasks. With the coming into force of Act LX of 1991, the MNB's activities were regulated by an act. The act was a key step ahead to make the central bank credibly and irrevocably commit itself to independence.

The Act LX of 1991 defined the Magyar Nemzeti Bank as an institution obliged to report to the Parliament. By that Act, independence from the government was confirmed by a national law adopted by the Parliament. The Act ordered the MNB to support the government economic policy and protect the internal and external purchasing power of the national legal tender. The Act obliged the central bank, as controller of demand for money and loan, to be liable for conducting monetary control. An important change was that loans lent by MNB to the state were restricted. (Bánfi-Balogh-Varga, 1994)

Instruments of monetary policy were also defined. The range of monetary policy instruments included refinancing, regulation of minimum reserve ratio and liquidity reserve ratio, and open market operations. The Act licensed the MNB to determine central bank policy interest rate. However, the central bank shall determine the exchange rate regime in agreement with the government. The MNB shall protect the exchange rates as established within the framework.

In focus – reduce inflation rate. After 1995, the primary objective of the MNB was to reduce inflation rate gradually.

In compliance with the Act on the central bank, the government and the MNB introduced a new exchange rate regime in March 1995 called narrow-band crawling peg devaluation. Unlike the former incalculable devaluation steps, there was a shift to a more predictable system, in which forint was devaluated at a pre-announced date and extent in a fluctuation band of  $\pm 2.25\%$ . In addition to improve predictability for business decisions, the new exchange rate scheme was meant to create conditions for regaining credibility. The inflation rate became anchored to the exchange rate. Domestic players used purchasing power of foreign currencies to determine the expected purchasing power of forint and to set prices.

The exchange rate scheme, however, left monetary policy to work in confined space only. In fact, it was the rate of crawling that determined the freedom of movement for the central bank. The central bank's policy of interest rates was determined by how the exchange rate varied within the margin, and by decisions intended to schedule the reduction of the depreciation rate or determine the rate of reduction.

The central bank's approach was to provide more and more room for market processes. In practice, the MNB refrained from long-term interventions, and reduced the duration of its policy interest rate from the initial one month to two weeks. They developed an interest 'corridor' around the prime rate for 24-hour maturity with the purpose to reduce interest rate fluctuations arising from short-term liquidity squeezes. The two-week policy instrument, the interest rate corridor, the 3-month MNB bonds were adjusted to the policy instruments of the European Central Bank. (MNB, 2001).

Year 2001 was another key milestone in the development of monetary policy. In May 2001 the narrow-band crawling peg devaluation of forint changed. First the band was widened to  $\pm 15\%$ , and some six month later the crawling peg regime was cancelled.

The old Act on the Central Bank was replaced with Act LVIII of 2001, which further reinforced the MNB's independence. The Act declared the primary objective of the MNB shall be to achieve and maintain price stability.

Eventually, they entailed in changes within the framework of the monetary policy, as the new monetary policy regime with inflation targeting scheme was

introduced in 2001, even if they still operated with a wide exchange rate band at the edges of which the central bank was obliged to intervene to protect forint. The exchange rate band survived as late as until February 2008.

The first inflation target was set to be achieved in agreement with the government by the end of 2001, and they targeted price level of 7%. As a consequence of commitment to a quick adoption of the euro was a high-priority item on the agenda at that time, they wanted to reduce inflation rate to as low as 4.5% by the end of 2002. After that, the inflation rate target remained unchanged until 2006, and it was in 2007 when it dropped to 3%.

As of 2002 disinflation was strongly influenced by the loosened state budget policy. It was not until in the autumn of 2006, when the first measures to rebalance state budget were taken. Fiscal restrictions, however, immediately caused the economic growth to fall. The 2008-crisis hit Hungary under such adverse conditions (Neményi, 2009). Adverse external economic conditions projected recession in real economy and made it impossible to finance the state budget from the open market. In terms of financing, the private sector too was shocked seriously. As external funds dried up and became more expensive through commercial banks mostly owned by foreign entities, which had a negative impact on crediting conditions for enterprises and households.

Since the establishment of the inflations targeting system the MNB had manoeuvred against international trends. As a result of inflationary pressure caused by the high deficit in the state budget, the MNB maintained the policy rate high. The central bank did not modify the high rate, and raised the rate significantly due to the fall of forint exchange rate, although the exchange rate band was cancelled in the end of 2008.

Between March 2007 and March 2013 the inflation rate continued fluctuating, while the heart of fluctuation was still above the desired range of 2.5% to 3%. Unfortunately, the fact that they cancelled fluctuation band of forint in February 2008 did not manage to improve the situation, either. There was no exchange rate target anymore binding for the MNB apply in the course of conducting its monetary policy.

Downgrading tendency in the inflation rate over an extended period of time was seen only between March 1995 and early 2000. It should be noted that the economic



policy deliberately caused the inflation rate to raise high in the beginning of the period.

In addition to ensuring and maintaining price stability, central banks deem the importance of maintaining stability of the system of financial intermediation. In the years 1997 and 1998 first the Southeast Asian and then Russian crisis unfolded. Among the Hungarian financial institutions, the crisis affected the investment service providers in a serious way. As a result of crisis, many investment service providers were wound up.

Gradual appreciation of forint's real exchange rate began between 1995 and 2001. After 2001, the process came to a standstill. The appreciation of forint's real exchange rate and the large difference between interest rates of forint and foreign currencies resulted in market players became seriously indebted in foreign currencies. After the unfolding of crisis 2008, it was considered a serious financial stability risk (Lentner, 2015).

The MNB's role in crisis management and setting the Hungarian economy on an upwarding path from 2013. 2013 witnessed a decisive change in monetary policy, as the new Act CXXXIX of 2013 on the National bank of Hungary came into force. Since it had turned out in the previous years that low inflation alone is unable to ensure financial stability automatically, the support the maintenance of the stability of the system of financial intermediation became a key objective for the MNB. The Act obliged the central bank to define macro-prudential policy with the view to strengthen the system of financial intermediation, through which harmonised economic growth is achieved.

The primary objective of the central bank remained unchanged, namely to achieve and maintain price stability. However, the MNB concluded a different interpretation on how the monetary policy can, without prejudice to price stability, support the growth of the Hungarian economy. In the revised approach they defined the central bank as an institution in charge of public weal. A responsible central bank therefore, in consideration of the effects of risks and decisions, uses all the instruments at its disposal in order to achieve the social objectives (Lentner-Szegedi-Tatay, 2017).

The new approach triggered changes in the range of monetary policy instruments applied. In addition to the central bank base rate, other instruments meant to foster the activities of the banking system, contributing to the implementation of transmission mechanism, and supporting the balance of the state budget were introduced. (Matolcsy-Palotai, 2016)

It was as late as in August 2012, when the MNB began to reduce the base rate, although the economic conditions had allowed earlier measures (Sági, 2014). In order to allow the interest rate environment to contribute to the upswing of real economy, the MNB lowered the policy interest rate to a historical low of 0.9%, while keeping the inflation target away from threats

A credit incentive tools was introduced to boost corporate lending. Primarily the Growth Scheme aimed to improve the credit conditions offered to small- and

medium-size enterprises.

The MNB helped to correct one of the biggest mistakes in the economic policy between 2003 and 2008, and played a key role in converting foreign currency loans of households to forint. In order to eliminate stability risks the central bank placed about 10 billion euro at the bank system's disposal, and the foreign exchange risks households had been exposed to get eliminated (Parragh, 2017).

The MNB launched its self-financing scheme with the aim to reduce exposure to foreign funds and mitigate the cost of funding the state budget. The modified policy instruments of the MNB, as discussed above, had a decisive influence in the market of state budget funds as well.

**Conclusions.** The inflation rate fell remarkably between March 1995 and March 2001. Eventually they created an artificially high rate exceeding 30% in. In that period inflation was anchored to the exchange rate scheme based upon narrow-band crawling peg devaluation. Within the framework of such devaluation forint was devalORIZED from time to time at a pre-announced rate. In that period the government was responsible for determining the exchange rate regime and the MNB's interest rate policy had to adopt the devaluation rate. By the end of that period inflation had been anchored to around 10%, and the MNB alone had no more powers or instruments to reduce it any further.

It was only after March 2001, when the following disinflation period began. First they widened the narrow exchange rate band in May 2001, and the crawling peg devaluation was cancelled six months later. Inflation rate began to fall from the level around 10%, followed first by a rise when dropped below 5%, and then a drop was seen again afterwards. The inflation targeting system, introduced in 2001, failed to keep inflation rate low for an extended period of time.

The above-described turn in the monetary policy was highly desirable, since although the inflation conditions had allowed the central bank to support the government's economic policy, maintain financial stability, and economic growth before, the MNB failed to take such measures. Since the adaptation of inflation rate targeting system until 2013 there had been a lack of harmony between fiscal and monetary policy, which caused tremendous economic losses (Matolcsy-Palotai, 2016).

The Magyar Nemzeti Bank fulfilled its legal liabilities and tasks in the period between 2013 and 2017. With price stability as number one objective in mind, the central bank met its broad mandate too. It contributed to the maintenance of financial stability, fostered the government's economic policy and economic growth. From that period the consistent cooperation between the central bank and the government in the interest of achieving economic targets is worth highlighting.

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## **DETERMINING THE ACTUAL LABOR COSTS STANDARDS IN DEPENDENCE TO THE LEVELS OF LABOR INTENSITY OF SOFTWARE PRODUCTS IN THE IT-INDUSTRY**

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Creating labor cost standards in the IT industry is a rather complicated process, primarily due to the fact that software creation is an intellectual process. It is currently not subject to precise value and time assessment [2], because specialists in different occupations and categories can participate in the programming of one task. In addition, labor productivity in the software development process depends on many factors: qualifications of a specialist, algorithmic complexity of a programmed task, mathematical support, etc., which is difficult to consider.

According to the results of the theoretical generalization, we can say that there

is no «formal approach» to the measurement of the work of specialists on the production of software products: no time lines of code, functions, classes, etc. are calculated. [2]. The creative elements of the work of specialists and technicians in the IT industry are almost non-standardized and can only be determined by applying peer-reviewed or clearly regulated by the terms of development of software products. Often, experts are the direct developers with some experience, company management, competitors [2]. On the basis of estimates of individual experts in accordance with the existing methods, an integrated consensus assessment is formed.

Technical elements of labor in IT companies can be measured, but the accuracy and adequacy of such norms has a rather wide spread of values due to certain dependencies of the complexity of the software product on its main parameters.

That is, it can be argued that the cost of labor in the IT industry depends on the type of software product and the length of its development and execution, that is, the basis of the standardization (measurement) of labor should be labor-intensity.

The researchers, take into account the design process, share the existing models of evaluation of the complexity of the software product into two groups [12]: algorithmic, based on the calculation of the quantitative characteristics of the program in the form of number of operators or functional points, and non-algorithmic, using certain schemes or principles.

To evaluate the complexity of projects that solve innovative problems or based on the latest technologies and processes, the first of all non-algorithmic methods, namely, expert methods, as has been mentioned more than once, are applied. Taking into account the innovativeness and creativity of most of the components of the software being created, such assessments have become widespread in the practice of developing programs, which has become the dominant argument when choosing to use this method of scientific knowledge in the article to evaluate the complexity of IT industry by example software products [13].

To determine the complexity of software products in each of the research companies that provide software services, expert groups of 10 people were formed:

- 1) specialist in the development and testing of the developer company software (E 1);
- 2) specialist in the development and testing of similar software products of the developer company (E 2);
- 3) specialist in information technology of the developer company software product (E 3);
- 4) analyst of operational and application software of the developer company (E 4);
- 5) representative of the management of the software developer company (E 5);
- 6) specialist in the development and testing of software of competitor companies (E 6-10).

In our view, the inclusion in the expert group of specialists of the software

developer company and the competitors' companies will ensure the impartiality of the evaluation results.

Taking into account the fact that IT technologies form the innovative branch of the economy and based on the criteria for determining the complexity of scientific works in the Methodology [10] and technical characteristics of software products [9], the following criteria for defining the complexity of software products are proposed:

1) novelty, which characterizes the degree of approximation of a new software product relative to existing ones, the availability of information and practical experience in the performance of such software products (K 1);

2) the complexity of the software product - the number of lines of code, the cyclomatic complexity, the number of functional points, the number of classes and interfaces, the size of binary files (K 2);

3) information capacity, which takes into account the multi-vector software product, the number of problems studied (K 3);

4) practicality - the ease of studying and using the product (K 4);

5) the response time of the software product - the speed of the program response to user requests (K 5);

6) multitasking software product - the ability to perform more than one task at a time (K 6);

7) virus protection - the ability to counteract the negative effects of viruses (K 7);

8) integrity - the ability of the software product to prevent unauthorized or incorrect access to data, restrict access to the system for unauthorized users (K 8);

9) adaptability - the ability to use a software product without modifying it in those industries or environments for which it was not directly targeted (K 9);

10) accuracy - the degree of error-free operation of the software product and the reliability of the results (K 10);

11) survivability - the ability of the software product to continue working when inaccessible data is entered or in tense conditions (K 11).

The object of the study became the most well-known software products developed during the last 3 years in 3 IT companies in the ranking of TOP-10 of the largest IT companies in Ukraine with offices in Kharkiv (Ciklum, Infopulse, NIX Solutions Ltd) ; 3 companies in the ranking of TOP-50 (Intetics Inc., CS Ltd, Gameloft) and 3 companies in the ranking of TOP-100 (BrightgroveLtd, Itera Research, Eastern Peak) [11].

For research, companies are selected by different number of personnel, volumes of financial resources and financial results in order to identify the patterns and characteristics of determining the labor complexity of products and the standardization (measurement) of the labor of IT-industry companies.

Estimation of the labor intensive of software products (SP) was carried out by the ballistic method on a 5-point scale. Estimates can be displayed in the format of integers in the range [1-5], where the score «1» means that the program has

insignificant features of the criterion, «5» - in full.

The more the criterion is inherent for SP: the greater the level of novelty, greater complexity, information capacity, ease of use, reaction speed, multitasking, greater degree of protection from viruses, integrity, accuracy, adaptation and survivability, the greater its labor intensity. Since all criteria are equivalent to impact, weighted coefficients are not assigned, and the total estimate of the complexity of the SP is defined as the sum of the average points by the experts according to all the criteria.

The results of the expert assessment are significant and suitable for further research, subject to the consensus of expert opinions. The most common method of assessing the consistency of the views of the entire group of experts is to calculate the concordance coefficient (W) [3].

To calculate the concordance coefficient, the ballpoint matrix is translated into a rank matrix. The concordance coefficient assumes a value from 0 to 1. The greater the value of the concordance coefficient, the greater the degree of consistency of expert opinions. At  $W = 1$  there is complete consistency of expert opinions, at  $W = 0$ , consistency is practically absent [3].

The same values of the concordance coefficient may have different meanings depending on the number of criteria and the number of experts, therefore the statistical significance of the concordance coefficient was checked, for this reason was used the Pearson criterion (formula 1) [3]:

$$\chi_p^2 = \frac{12 \sum_{j=1}^n d_j^2}{[mn(n+1) - \frac{1}{n-1} \sum_{i=1}^m T_i]^2}$$

where

$m$  – number of experts;

$n$  – number of criteria;

$T_i$  – results of interim calculations in the presence of related ranks;

$d_j$  – deviation of the sum of ranks for the  $j$ -th criterion from the average sum of ranks by sampling;

$\chi_p^2$  – estimated value of the Pearson criterion.

If  $\chi_p^2$  is greater than the table  $\chi_p^2$  with the number of degrees of freedom  $(n-1)$ , then the concordance coefficient  $W$  is considered significant, and the expert estimates are sufficiently consistent.

The Table value of the  $\chi_p^2$  Pearson criterion for the number of degrees of freedom 10 with a confidence interval of 95% is 18,309.

For each software product for which its labor intensity was evaluated, the value of the concordance coefficient is approaching 1, and the calculated value of the  $\chi_p^2$ -criterion exceeds the table value. This indicates that with a probability of

95%, it can be argued that the opinions of experts are consistent, and therefore, the reliability of the results of the evaluation of the labor intensity of software products.

As it has already been noticed, the problem aspect of the standardization of labor in enterprises in the IT industry is the specificity of a software product that needs creative work and varies in complexity of implementation, which affects on the amount of time need to complete a specific technological operation. In this regard, it is expedient to determine the actual labor standards in the IT industry to carry out standardization of labor, taking into account the level of complexity of the software product, that is, the level of its labor intensity.

Based on the assessments of the expert survey, the levels of labor-intensiveness of the SP based on the Fibonacci scale were determined. In accordance with this method of cognition, intervals of values of levels are determined by the system (formula 2) [1]:

$$\left\{ \begin{array}{l} E_{min} \leq E_i \leq E_1 \\ E_1 < E_i \leq E_2 \\ E_2 < E_i \leq E_{max} \\ E_1 = E_{min} + 0,382(E_{max} - E_{min}) \\ E_2 = E_{min} + 0,618(E_{max} - E_{min}) \end{array} \right.$$

where

$E_{min}$  – the minimum possible value of the index of the labor-intensiveness of the software product;

$E_{max}$  – the maximum possible value of the index of the labor-intensiveness of the software product;

$[E_{min} ; E_1]$  – the interval of values of the low level of the index of the labor-intensiveness of the software product;

$(E_1 ; E_2]$  – the interval of values of the average level of the index of the labor-intensiveness of the software product;

$(E_2 ; E_{max}]$  – the interval of values of the high level of the index of the labor-intensiveness of the software product.

An expert evaluation of the complexity of software products was carried out on the basis of 11 criteria, each of which experts assigned scores from 1 (in the case if the software product is not substantially present features of the criterion) to 5 (if the software product is fully has features of the criterion). Thus, the minimum possible value of the index of the labor-intensiveness of the software product is 11 points, the maximum possible - 55 points.

According to the Fibonacci Law, changes occur at the level of 38.2% and 61.8%. The value of the difference between the maximum and minimum estimate of the labor-intensiveness of the software product is:  $55 - 11 = 44$ . By multiplying this difference successively by 0,382 and 0,618 and subtracting each of the received amounts from the «maximum», we obtain the values of the scale according to

which, according to the law of Fibonacci, the changes are most likely to occur.

Based on the results of the calculations, three actual levels of the labor-intensiveness of software products in the IT industry were obtained. The results of calculating the scale range values are given in Table 1. This approach will make it possible to determine the norms of labor productivity within each level of the labor-intensiveness of the software product of IT enterprises.

*Table 1*

**The scale of the differentiation of the levels of the labor-intensiveness of the SP at the enterprises of the IT industry**

Value range of the labor-intensiveness, points	[11; 27,7]	(27,8; 38,1]	(38,2; 55]
The level of the labor-intensiveness	Low	Average	High

In order to increase the efficiency of the process of rationing (measurement) and achieve the greatest information completeness of labor cost standards in the IT industry, it is advisable to take into account the factors of the influence of the internal and external functional environment of IT companies: factor of the qualitative and social status of workers, technological, economic and material-technical factors.

In order to take into account the influence of the system of deterministic factors on the efficiency of labor costs in the IT industry as a quantitative value, each factor is allocated according to a representative indicator.

Representative indicators are determined by the «center of gravity» method, according to which the representative in the group (factor) is the indicator for which the Euclidean distance to the group indicators is minimal, while the distance to the indicators of other groups is maximal. The Euclidean distance between the indicators is calculated by the formula 3 [5]:

$$d_{ij} = \sqrt{\sum_{k=1}^m (x_{ik} - x_{jk})^2},$$

where  $d_{ij}$  – the distance between the  $i$ -th and  $j$ -th objects;

$x_{ik}$  – the value of the  $i$ -th parameter for the  $i$ -th object;

$x_{jk}$  – the value of the  $j$ -th parameter for the  $j$ -th object.

Absolute, structural, tempo variables are used for factor analysis, therefore, in order to bring them into comparable form for the purpose of determining representative indicators, they were standardized using formula 4 [5]:

$$z_i = \frac{x_i - \bar{x}_i}{\sigma_i},$$

where  $z_i$  – the standardized value of the  $i$ -th indicator;

$x_i$  – value of the  $i$ -th indicator;

$\bar{x}_i$  – average value of the  $i$ -th indicator;



$\sigma_i$  – standard deviation i-th indicator.

Euclidean distances are calculated based on standardized values of indicators, and representative indicators are determined in each of the factors. For factors 1-3 (factor of the qualitative and social status of workers, technological and economic factors), this is an indicator that has the smallest amount of distances to other indicators of the factor. The fourth factor (material-technical factor) includes two indicators that have one distance with each other. Therefore, for this factor, representative is the indicator that has a maximum distance to other representative indicators.

Thus, representative indicators are: the share of highly skilled workers in IT-industry, %; index of development of information and communication technologies; volume of IT services market, UAH million; index of the value of fixed assets of the enterprises of the IT-industry. These indicators characterize the situation of the IT industry and affect the determination of labor standards in the national economy.

In order to study the standardization (measurement) of labor at the micro level, similar indicators for enterprises were calculated: share of highly skilled workers in the company developer of the software product; index of development of information and communication technologies in the company; the index of the value of the company's services and the index of the value of the company's fixed assets. However, more accurately, the level of company development and its impact on the efficiency of labor use is described by a dynamic indicator – the index of the cost of services rendered by the company, which is taken for settlement.

In the inter-branch norms [8, 7, 6] it is stated that the norm is calculated by dividing the labor-intensity into the fund of working time of one employee, adjusted for the coefficient, which takes into account the possibility of absence at workplace. The same factors are taken into account for determining the time standards.

In order to determine the time standards for the development of SP and the number of employees, a multi-factor regression model was proposed.

Regression analysis is a method of statistical analysis of the dependence of the random variable  $y$  on variables  $x_1, x_2, \dots, x_n$ . Multi-factor regression analysis enables to determine indicators that influence on the resultant value, estimate the strength and nature of their impact. The results of the regression analysis are presented as a function used to predict, determine the optimal or normative values of the resulting variable. [4].

The multi-factor regression model look like (formula 5) [4]:

$$y = b_0 + b_1x_1 + b_2x_2 + \dots + b_nx_n,$$

where  $y$  – dependent variable;

$x_1, \dots, x_n$  – independent variable;

$b_0$  – free member;

$b_1, \dots, b_n$  – coefficients of the independent variables.

Independent variables model definition of labor standards for the development of software products are the labour-intensity of the software product ( $x_1$ ) and the values of indicators-representatives of factors influencing the efficiency of labor costs ( $x_2 - x_5$ ), dependent variable for modeling the norm of number - number of developers and testers involved in the development of a software product ( $y_1$ ); to simulate the time standard - the actual time spent on developing a specific software product ( $y_2$ ), which are obtained by the method of timekeeping.

The estimation of the parameters of the regression model ( $b_0, b_1, \dots, b_n$ ) is carried out by the method of least squares, the essence of which is to select the parameters of the model, which minimizes the sum of the squares of deviations of the actual values of the dependent variable from the calculated (formula 6) [4]:

$$\sum_i^N (y_i - \bar{y}_i)^2 \rightarrow \min,$$

where  $y_i$  – the actual value of the dependent variable for observation;

( $\bar{y}_i$ ) – calculated value of the dependent variable for observation;

$i=1, 2, \dots, N$ .

The construction of regression models allows us to determine the following regularities in the standardization (measurement) of the labor of the IT-sphere of Ukraine (Kharkiv region):

1. It is impossible to develop uniform standards of size and time, suitable for all companies in the industry.

2. Models of determination of labor standards differ from each other depending on the level of complexity of the software product.

3. The models for defining labor standards depend on the level of complexity of the software product and do not depend on the size and rating of the company.

The statistical significance of the independent variables in the models indicates that the calculated value of Student's criterion ( $t$ ) is higher than the table value, and the level of error ( $p$ -value) is lower than 0.05 [4]. So, with a probability of 95% it can be argued that the models for determining labor standards, depending on the level of labor productivity of the software product, are adequate and suitable for practical use.

The built models allow to determine the time and quantity norms for the development of a software product, depending on the level of their complexity.

The lower boundary of the norm is determined by substitution in the model instead of the indicator of labor intensity - its minimum value for the corresponding level of labor, the upper - by substituting the maximum value. The value of indicators of the index of development of information and communication technologies, the index of the value of services provided and the index of the value of fixed assets

of the company is accepted as 1.0, as it is dynamic indicators and provided that the conditions of labor and production remain unchanged, their value is 1.0. Since labor standards are being developed for the all IT industry, the value of the «share of highly skilled workers» indicator corresponds to the average value: at the end of 2016 - 0.37.

Calculated time standards, number of employees and labor intensity are presented in Table 2.

*Table 2*

**The actual values of labor standards in the IT-sphere, depending on the level of labor-intensity of the SP**

Standard	Value of the norm
Low level of labor-intensity of the software product	
The standard of time, months.	4-5
The standard of the number of employees, persons.	3-5
The labor-intensity, man-months.	12-25
Average level of labor-intensity of the software product	
The standard of time, months	4-5
The standard of the number of employees, persons.	5-7
The labor-intensity, man-months.	20-35
High level of labor-intensity of the software product	
The standard of time, months	6-7
The standard of the number of employees, persons.	6-8
The labor-intensity, man-months.	36-56

Thus, within the framework of the study, the actual labor costs standards of labor resources were determined in relation to the levels of labor intensity of software products. So, the low level of labor intensity of projects varies from 11 to 27,8 points, and the standard is an interval of 12-25 man-months. These include program projects with the least cost of time and human resources. The norm of time spent on technical development of a software product is 4-5 months, with the need of 3 to 5 people to complete it.

The average level of labor intensity of software products at enterprises of the IT industry varies from 27.8 to 38.2 points and is fixed by the norm of labor intensity from 20 to 35 man-month. This level of labor intensity is characterized by software products - intermediate in terms of the complexity of the technological process and the cost of time between small and large projects. The average level can serve as the base level for assigning certain software products to low or high level of their labor intensity. This is manifested in the fact that with the continuous improvement of the process of standardization of labor and the quality of personnel at the enterprise,

a part of software products can migrate from an average to a low level of labor intensity. Ineffective management of the company may have a reverse effect. The development of such software projects takes 4-5 months, with 5-7 competent specialists involved.

The high level of labor intensity varies from 38,2 to 55 points, and the standard of labor intensity is 36-56 man-months. The labor-intensive software products as much as possible require the expenses of labor and working time in the current organizational and technical conditions of the enterprise of the IT industry. As a rule, these are complex (embedded) projects, which must be implemented in the strict framework of the specified requirements. It takes 6-7 months for 6-8 specialists to complete them.

Thus, the actual labor standard for IT enterprises was determined taking into account the levels of labor intensity of software products and factors affecting the efficiency of labor resources utilization in the national economy.

Such an approach, first of all, contributes to the establishment of objectively necessary labor costs for the performance of specific work; and secondly, it is the basis of most planning and economic calculations at the enterprise both current and prospective.

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## **MODELING OF THE PROCESS OF DIAGNOSTICS OF THE POTENTIAL OF AGROINDUSTRIAL ENTERPRISES**

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Agroindustrial enterprises belong to the class of complex industrial and economic systems. They are in a dynamic and prone to actions both controlled and not controlled in the process of their purposeful or predetermined functioning. So, their state will eventually undergo certain changes. Therefore, it is necessary to organize the processes of identifying the problem and its establishment in order to provide further (desirable) functioning of the objects of economic activity.

The diagnosis of the potential of agricultural production enterprises is through awareness and identification of the symptoms of complications or helps to determine the problem in general terms. It is necessary to collect and analyze information regarding the internal and external environment of the operation of the enterprise to identify the causes of the problem. Such information can be collected using it within the organizational and legal form (reports, questionnaires of employees – interviewing, questionnaires, involvement of experts) and external –state statistics, which is regulated by the state. It is possible to collect information and informally, leading a conversation about the situation and personal observations. Increasing information complicates the choice of alternatives with the most favorable overall outcomes. But, if the problem is complex and if there is a lot of compromises to take, or if information and analysis are subjective, there can be no alternative that would be the best choice when assessing the capabilities of an enterprise to use the available potential efficiently and effectively. Diagnosis ensures the development of control activities in relation to the use of the potential components of agroindustrial

enterprises, causing it to go beyond its natural content and to form a controlling system.

Recently, controlling is beginning to position itself as a technology for rapid response of managerial and organizational potentials to unexpected events and changes in both the external and internal environment of enterprises.

Traditional diagnostics of production systems (PS), including agroindustrial production, is associated with considerable difficulties due to a number of features. Diagnosing the inertia of basic relationships (relationships) makes a great deal of difficulty in the implementation of procedures. The composition and functional connectivity of the parameters is manifested in the fact that the change in the value of any potential parameter can be caused by a number of reasons. Errors in the enterprise management system play an important role in this, due to the difficulties of ensuring continuous control over the state of the Sun, and the need to store, collect and process in real time a large amount of information, while simultaneously accounting for many different factors for diagnosis. This often exceeds the capabilities of the operator-manager, which practices mainly uses methods of functional diagnostics in his practice.

It is necessary to create group (integrated) intelligent computer systems (GICS) of the potential of agricultural enterprises, taking into account the change of the traditional enterprise management system («AS IS») in the direction of the desired intellectual («TO BE») and providing effective diagnostic procedures directly in the process of exploitation. In the process of diagnosis, they take into account many alternatives to interpreting events; the need for joint consideration of the set of events; the formation of algorithms for recognizing the root cause of the violation more often in the form of a set of rules than in the form of a management system. The necessity of using heuristic methods of identifying the most probable solutions and their application areas indicates the possibility of increasing the effectiveness of diagnostic procedures using methods of artificial intelligence theory.

The questions of organizing diagnostic procedures, constructing models of agricultural production objects, developing algorithms and designing specific automated systems were studied by many foreign and domestic scientists. Among them should be noted the publication of H. Azoiev [1;2], Yu. Alekseev [3], A. Alekseeva [4], T. Burtseva [6], K. Bushuiev [7], N. Bushuieva [8], J. Brandts [9], V. Voronkova [10] and many others.

Problems of intellectualization and typification of the diagnostic system of agroindustrial enterprises based on traditional methods and principles of new information technologies need further development, despite the specified development in this direction.

At the same time, the greatest effect can be obtained by integrating these two approaches into a single system [3;4]. Many uncontrolled disturbances occur in the process of diagnosing the potential of production systems with the economic constant monitoring of the causes of violations. They differ in the presence of

uncertainties and can be realized using methods of artificial intelligence. The lack of sufficient amounts of statistical data to establish objective relationships between the values of signs and probabilistic diagnoses makes use of a heuristic description of these dependencies.

In general, a model for diagnosing the potential of enterprises and channels of information transmission can be submitted in the form of the following equations:

$$F(x, u, w, a, t) = 0, y(t) = G(x, u, \xi_0, v, b, t),$$

where  $x$  – vector of state;

$u \in R^r$  – vector of control;

$y \in R^m$  – vector of output variables;

$w, v$  – vectors of disturbances and obstacles (included in equation (1) as additive and multiplicative);

$a, b$  – vectors of uncertain parameters, moreover  $a(t)=0$  i  $b(t)=0$ ;

$F, G$  – some given operators (differential, both ordinary and partial derivatives, integral, integro-differential, matrix, etc.).

Stochastic differential equations (linear or nonlinear, continuous or discrete), partial differential equations can be used as (1), for example, for cases where the location of production objects of agroindustrial production is taken into account.

The models for processing and identification that can be practically implemented are as follows:

$$\dot{x}(t) = A(t, \theta)x + B(t, \theta)u + W(t), y(t) = C(t, \theta)x + V(t),$$

or, in a discrete case

$$\begin{aligned} y(k+1) &= H(k)x(k) + V(k), \\ x(k+1) &= \hat{O}(k+1, k, \theta)x + \Psi(k+1, k)u(k) + W(k) \end{aligned}$$

where  $A, B, W, C, H, V, \Phi, \Psi$  – fuzzy variables;

$x(t)$  – vector of state;

$y(t)$  – vector of output variables;

$u$  – vector of control;

$K$  – vector of quantitative variables;

$x(k+1)$  – vector of quantitative variables of state;

$y(k+1)$  – vector of quantitative output variables.

Typically, the control condition (schema) of diagnosis is the ratio, as:

$$\mu(E(t)) < \delta,$$

where  $\mu(\cdot)$  – some given metric, for example, the Euclidean norm;

$\delta$  – allowable threshold value, which is given;

$E(t)$  – failure (deviation) or departure from the norm, or evaluation of the state from the reference, or evaluation of the parameters from the nominal, or characteristics of the estimates from the possible (for example, covariance of the updating processes in the Kalman filter), etc.

For example,  $E(t) = \hat{O}(y^T, q^{-1}y^T, \dots, q^{-k}y^T, u^T, q^{-1}u^T, \dots, q^{-k}u^T)$ , where  $\Phi$  – operator,  $k$  – the order of the control scheme, which is subject to determination (or task).

Then the condition for the absence of defects will take the form:  $E(t) = 0, t = 0, 1, 2, \dots$  but the condition (4) can be rewritten as follows:

$$\|E(t)\| \leq \delta$$

We note that the task can be solved as in the case of deterministic, which happens rarely, and in conditions of stochastic and multiple uncertainties.

It is necessary to create intelligent and integrated computer diagnostic systems based both on traditional methods and on the basis of new information technologies for increasing the efficiency and quality of diagnosing complex manufacturing systems.

In conditions of fuzzy information  $X_1, \dots, X_n$  – a number of features, the specific values of which are made judgments about the subjective probability of diagnoses from a predetermined number of diagnoses  $D_1, \dots, D_k$ . Each of them

$X_i, i = \overline{1, n}$ , gets a value from the plural  $X = \{x_{i1}, \dots, x_{im_i}, \dots, x_{ip_i}\}$ .

At time  $t$  the state of the object is described by a vector of signs:

$$X(t) = [X_1(t), \dots, X_n(t) | X_i(t) = X_{im_i} \mid m_i = \overline{1, p_i},$$

where  $\bar{X}_i(t)$  – realization of the sign  $X_i$  at the present moment  $t$ .

It is required to determine the assessment of the probability (extent of possibility) of diagnoses  $P_{\bar{a}}(j)$ :

$$\forall j = \overline{1, k}: \delta_{\bar{a}}(j) = \delta_{\bar{a}}(D_j / X(t)).$$

where  $P_{\bar{a}}$  – symbol of subjective probability.

The method of representing expert knowledge is an important issue for the form of representation of expert knowledge in the system.



The first way. Expert knowledge is provided in the form of the following system of rules:

$$\forall i = \overline{1, n}, \forall j = \overline{1, k}: X_1 = x_{1m_1}, \dots, X_n = x_{nm_n} \Rightarrow \\ \Rightarrow P_{\bar{a}}(D_j | X(t)) = P_{\bar{a}s}(D_j | (x_{1m_1}, \dots, x_{nm_n}))$$

where  $x_{im_i}$  – specific value  $X_i$  from the plural;  $\{x_{im_i}\}, m_i = \overline{1, p_i}, p_i = \text{card}\{x_{im_i}\}; P_{\bar{a}s}$  –  $s$  – value of estimating the probability of a set of possible values,  $\{P_{\bar{a}s}\}, P_{\bar{a}s} \in [0, 1], s = \overline{1, m}$ .

The second way. Another possible type of expert knowledge representation is a system of rules that are described with the same notation as follows:

$$\forall i, \forall j, \forall m_i: x_i = x_{im_i} \Rightarrow P_{\bar{a}}(D_j | X_i) = P_{\bar{a}s}(D_j | x_{im_i})$$

Both methods of presenting expert knowledge have different properties, and the algorithms for processing these forms of information are also different.

The most convenient for the expert form of presentation of knowledge of the implicit form is the linguistic, which is most commonplace for a person. In this case, the expert operates blurred (fuzzy) categories, such as: «If the value of  $X_i$  is very large, then the probability  $D_j$  is small». Therefore, a linguistic approach based on the theory of fuzzy sets of L. Zade can be applied to the compilation of fuzzy information model [6; 7; 8; 10; 11].

In the fuzzy algorithm, the diagnosis of the sign and probability are represented by linguistic variables (LV), which are determined by tuples:

$$\langle X_i, T_i, V_i, G_i, M_i \rangle, i = \overline{1, n} \\ \langle P_{\bar{a}}, P, U, S, Q \rangle,$$

where  $X_i, P_{\bar{a}}$  – the namely of the corresponding LV;

$T_i, P$  – term set of variables  $X_i$  and  $P_{\bar{a}}$  accordingly, namely, the set of their linguistic values, which are the name of the fuzzy variables (FV) :

$$A_{f_i}(f_i = \overline{1, p_i} / p_i = \text{card} T_i) \text{ и } B_r(r = \overline{1, m} / m = \text{card} P)$$

with values from universal sets  $V_i$  and  $U$ ;  $G_i, S$  – syntactic rules, that generate the names  $A_{f_i}$  and  $B_r$  values of the variables  $X_i$  and  $P_{\bar{a}}$ ;  $M_i, Q$  – semantic rules that allow you to convert linguistic variables to each new value (NV). New value  $A_{f_i}$  and  $B_r$  can be represented in the form of the corresponding tuples:

$$\begin{aligned} \langle A_{f_i}, V_i, \tilde{C}_{f_i} \rangle, i = \overline{1, n}, \\ \langle B_r, U, \tilde{E}_r \rangle, r = \overline{1, m}, \end{aligned}$$

where  $A_{f_i}, B_r$  – nomination of NV;  $V_i$  and  $U$  the same as above;

$$\tilde{C}_{f_i} = \bigcup_{v \in V_i} \mu_{\tilde{C}}(V)/V \text{ ; } \tilde{E}_r = \bigcup_{u \in U} \mu_{\tilde{E}}(U)/U$$

– fuzzy subsets (FS) of sets  $V_i$  and  $U$ , which describe the constraints on the possible values of NV  $A_{f_i}$  and  $B_r$ ;  $\mu_{\tilde{C}}(\cdot)$  and  $\mu_{\tilde{E}}(\cdot)$  – membership function (MF) for  $\tilde{C}_{f_i}$  and  $\tilde{E}_r$ . For example, for a certain block of production systems with a diagnostic feature, the following linguistic variables are aligned:

$$\begin{array}{l} \langle X_1, T_1, [\cdot], G_1, M_1 \rangle \\ \langle X_2, T_2, [\cdot], G_2, M_2 \rangle \\ \hline \langle X_5, T_5, [\cdot], G_5, M_5 \rangle \end{array}$$

where term set  $T_1 = \dots = T_5 = \{\text{much increased, increased, increased slightly, decreased slightly, decreased, decreased significantly, did not change}\}$ .

The probability rating is represented by the same linguistic variable  $P_{\hat{\alpha}}$ , and term set P consists of the following linguistic values of the variable:  $B_1$  – ruled out,  $B_2$  – almost incredible,  $B_3$  – very unlikely,  $B_4$  – unlikely ...,  $B_m$  – exactly.

The question of building a membership function for  $\tilde{C}_{f_i}$  and  $\tilde{E}_r$  can be resolved using the recommendations presented in [3; 4; 5; 6].

Thus, the expressions (7) and (8), in accordance with the notations (9) – (12), in general can be written down as follows:

$$\begin{array}{l} \forall i, \forall j: \text{ if } X_1 \text{ is } A_{f_1}, \dots, X_n \text{ is } A_{f_n}, \\ \text{ then } P_{\hat{\alpha}}(D_j / (X_1, \dots, X_n)) \text{ is } B_r \end{array}$$

$$\forall i, \forall j, \forall f_i: \text{ if } X_i \text{ is } A_{f_i}, \text{ then } P_{\hat{\alpha}}(D_j / X_i) \text{ is } B_r$$

It should be noted that the presentation of information in the type model (14)

further requires an additional procedure for obtaining for each diagnosis of a comprehensive assessment of the probability of  $P_{\epsilon} (D_j / (X_1, \dots, X_n))$  by generalizing, according to a certain rule, independent evaluations  $P_a (D_j / X_i)$  obtained on separate grounds.

The model (13) is devoid of this disadvantage, but has a larger dimension. The rules of type (13 and 14) can also be presented in the form:

if  $X_i$  is  $A_{f_i}$ , then  $D_j$  with probability is  $B_r$ .

Thus, the fuzzy production model (fuzzy knowledge base) consists of diagnostic rules («dispatcher – expert»):

if  $X_i$  is  $A_{f_i}$ , and

if  $X_2$  is  $A_{2f_2}$ , and  
.....

if  $X_n$  is  $A_{f_n}$ , then  $D_j$  with probability is  $B_r$

The matrix of fuzzy relations is based on a set of rules:

$$X_j R D_j \text{ or } R = \bigcup_{x \in X \in D} \mu_R(x, d) / (x, d)$$

The developed mathematical model of the intellectual system of potential diagnostics with its software allows in real conditions to control the changes in the possibilities of enterprises of agroindustrial production.

So, it can be argued about the possibility of creating intelligent computer systems that combine the properties of traditional systems and use «hard» models and algorithms and such signs of intelligent systems based on knowledge, such as base of knowledge, benevolent interface, logical conclusion, self-study.

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## **CONCEPTUAL ASPECTS OF THE SERVICES ENTERPRISE ECONOMIC SECURITY**

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Economic security is one of the top priorities of functional safety. Globalization, informatization and fierce competition actualize the problem of ensuring economic security. Development of new and adaptation of the existing mechanisms and instruments to improve the efficiency of security is a necessary condition for the successful functioning of any company.

The service sector plays an increasingly prominent role in the development of economy. However, this does not mean that service providers today are in a privileged market position. Competition in the service market is aggravating with every passing year. Under the influence of globalization, it acquires an international dimension. The lack of visible progress in the development of the real sector of the economy slows down the profitable development of services business.

At the same time, the situation on the services market in Ukraine can be significantly changed due to reforming the local self-government bodies, the purpose of which is to entitle the local management authorities with the right to

solve the local matters at the expense of their own resources.

Sustainable development of market relations leads to increasing the efficiency of management. Therefore, a beneficial prerequisite for the development of enterprises in a market economy is the effective economic security management. It is this aspect that provides a successful counteraction of an enterprise to the negative effects of the environmental factors, and promotes its developmental advantages, making it more competitive at the market. Thus, enterprise security management is one of the most important and urgent problems, both from the theoretical and practical point of view.

Assessing the development of the services sector on a global scale, it should be emphasized that the decisive factors in it are the scientific-technological revolution and the structural-technological reorganization of the production process, since the scientific-technological revolution stimulates the emergence of a wide range of new services on the market, which are consolidated with information technology, computerization and innovative communication methods. The development of public services in many countries has stimulated the privatization and restructuring of service activities, primarily in transport, telecommunications, financial and insurance services. At the same time, scientific and technological progress removes barriers on the way of transmitting the services at a distance, giving them an international character [3]. Consequently, the role of economic security in the services sector increases significantly.

In contemporary scientific literature on economics, considerable attention is paid to security in general and the economic security of enterprises in particular. However, a number of important issues still require serious and scrupulous investigation.

The economic security of the business entity is considered to be the principal and integral part of the economic security assurance for the whole enterprise. In Latin «security» means “freedom from anxiety: se (without) – cura (care, anxiety), i.e security is the position of an entity, in which the probability to change inherent properties of this subject or its environment parameters is negligible [5].

In view of this, the economic security of the enterprise, including the services sector, means ensuring such functioning of the enterprise which implies achieving a positive socio-economic effect by obtaining profits and satisfying the needs of consumers and employees of the enterprise [7].

Successful operation and development of services enterprise largely depends on the effective management decisions regarding its economic security. Service companies are particularly sensitive to changes in the environmental factors, since their activities and the products of these activities are quite specific.

The material basis of economic security of the service sector is its economic potential, which determines the possibility of protecting the economic system from the adverse influence of the external and internal environment.

The theoretical analysis of scientific sources of the Ukrainian and foreign

researchers on the issues of economic security of enterprises makes it possible to identify the following specific features of the service enterprise management and the peculiarities of entities' economic security management:

- intangibility – the impossibility to experience consumption;
- interdependence of production and consumption;
- dependence on the time and place of receiving the service;
- impossibility of preservation;
- flexibility of demand for income and prices;
- seasonal fluctuations in demand;
- subjectivity of the assessment of the quality of the service, etc.

It should also be noted that the economic security of the company is dependent on the interaction of various factors. Some factors in a particular period of time can be considered as stable (for example, technical characteristics of fixed assets, number of employees, etc.), others are sometimes subjects to significant changes over a relatively short period of time (eg. fluctuations in product prices, supply and demand levels, level of investment activity, etc.). A number of factors can not be accurately quantified [8, p. 773].

According to the economic theory there are four cases, in which external and internal factors can cause serious damage to the service enterprise:

- 1) the system of economic security of the enterprise is constructed in such a way that it can not predict a threat to its safety;
- 2) the threat has arisen, but the officials in charge of the economic security of the enterprise can not see it;
- 3) the threat has been detected, but the management of the company is unable to prevent its negative consequences;
- 4) the management of the company tries to solve the problem, but its actions do not lead to any positive result [6, p. 205].

Any service is known to involve two interrelated processes:  
intra-firm manufacturing process (often invisible to consumers);  
interaction with consumers (intangible part of the service).

It is worth pointing out that the provision of economic security of the services sector has certain specificity owing to high significance of interaction with customers/clients. Consumers of services apply for their provision, as a rule, after more rigorous testing of consumer products of service enterprises (in comparison with manufacturing enterprises). Such increased requirements to the services quality is due to the complexity of neutralization techniques of marketing services, specificity of service quality control, determination of intangible services utility, cost estimates for consumption of certain types of services, control of service delivery, quick change of service providers, assessment of the service reliability.

Managing the interaction with customers becomes even more complicated in the case of diversification of service enterprises. In this regard the strategy should be assessed from the point of view of preventing the emergence of threats to their

economic security

The most important tasks of providing economic security to the enterprises of the service sector include:

- assessment of the internal and external threats to the security of the enterprise, businesses, projects, contracts;
- conducting business marketing (competition investigation and counterintelligence);
- preparing information and analytical materials concerning markets, projects, contracts, partners;
- verification of business reputation and solvency of counterparties and partners;
- preventing threats and illegal actions on the part of unscrupulous competitors;
- verification of staff reliability;
- conducting business negotiations with debtors, minimizing the receivables;
- providing physical protection of the objects and top management;
- interaction with law enforcement agencies and supervisory bodies;
- protection of confidential information, etc.

The study has revealed the fact that the economic security of service enterprises is inherently dual: on the one hand, it ensures the possibility for an enterprise to operate on its own, on the other hand, it is a part (element) of the economic security of the higher-level system, ensuring the fulfillment of functions at the regional and state levels. In the market economy conditions, the enterprise of the sphere of services, as an open system, functions in a complex external environment, which is characterized by instability and constant dynamics. It forces the company to adapt quickly to the new conditions, to search the ways to survive in a market economy, to take into account factors of uncertainty and instability of the economic environment [4, p. 654].

Numerous factors that pose a threat to the economic security of the service enterprises encourage the establishment of a monitoring system for the purpose of early detecting of danger signs and taking necessary measures of protection and counteraction.

«External» and «internal» threats are highly individual for each enterprise. At the same time, in our opinion, these categories include certain elements that are acceptable to practically any economic entity, including the sphere of services. Thus, the external threats and destabilizing factors include the illegal activities of criminal structures, competitors, enterprises and individuals engaged into industrial espionage or fraud, insolvent business partners, formerly dismissed for various misdemeanors the employees of an enterprise, as well as misfeasance of the corrupt elements from among the representatives of the controlling and law enforcement agencies.

The internal threats and destabilizing factors include intentional and unintentional actions or inactions of the enterprise employees, which contradict the interests of its commercial activity. The consequences of such threats are: causing heavy economic

losses, information leakage or loss of information resources (including information containing trade secret and / or confidential information); undermining the business image of the enterprise; problems in relationships with actual and potential partners, conflicts with the representatives of the criminal environment, competitors, regulatory and law enforcement agencies, occupational injuries and others.

N.I. Havlovska and Ye.M. Rudnichenko suggest to identify the threats by an area of their origin, and the risks as issues associated with some degree of uncertainty of the result owing to either the reckless decisions (actions and/or circumstances) or inactivity to minimize threats. Using the described approach, this study explores the main threats in the service enterprises activities by the sphere of their occurrence. The identified threats then can be classified accordingly:

- the personnel: incompetence of the staff; non-compliance with qualification standards; aggressive behavior; criminal orientation in activities (thievery, disclosure of confidential information, etc.); non-compliance with safety rules;

- information support: imperfect software; lack of information security system (both intra-system and customer information); ineffective work of the site or its absence; insufficient level of integration into the world information space; unsatisfactory level of communication;

- technologies: non-compliance with standards and safety rules; obsolescence of equipment; low-power equipment; low energy efficiency; insufficient ergonomics; non-compliance with environmental and sanitary norms; inappropriate provision of housing and utilities services;

- finances: negative financial results; ineffective pricing; lack of financial control system; imperfect system of payments to customers, staff and suppliers; non-compliance with the fiscal legislation; decrease in revenues due to customers outflow;

- logistics: lack of the proper resources provision and their inappropriate quality; ill-timed fulfillment of orders; shortfall or residual resources;

- physical security of clients: absence of security service; lack of technical facilities for the protection of premises; absence of contracts with commercial organizations on protection and maintenance; possibility of outsider's penetration into the territory of the enterprise; the possibility of attack by unauthorized persons or creating a physical threat to customer's safety;

- an enterprise image: lack of image-making events; the formation of a negative image; provocations on the part of competitors;

- the regulatory and legislative framework may contain such threats as legislative changes; administrative pressure; changes in foreign economic relations [1, p. 21].

Successful protection of services enterprises from the threats depends on the completeness of the implementation of the relevant measures aimed at the solution of this problem.

The theoretical rationale for the choice of the appropriate methods and strategies of providing economic security in the services sector is another important



conceptual aspect in solving the problem of economic security of the enterprise. We have highlighted the following methods as those that might contribute the best to the successful solution of the above mentioned problem:

- collecting and analytical processing of the information on the economic situation in the enterprise environment at the macro- and micro-levels;
- drawing up forecasts for the economic situation development at the macro and micro levels;
- identification (prediction) of the possible threats for the company that could affect its activities at various levels;
- making decisions on preventing or minimizing the impact of the identified threats;
- organizing the activities aimed at the prevention of possible threats;
- advance development of models of counteraction to the negative impact of the threat on the activities of the enterprise;
- carrying out practical experiments to check the efficiency of the developed models;
- identification, analysis and evaluation of the actual threats to the economic security that have arisen;
- decision-making concerning the response to the threats that have arisen;
- implementation of the developed models in practice;
- monitoring and evaluating the effectiveness of the implemented decisions;
- introducing adjustments to the system of counteraction to threats
- continuous improvement of the economic security system of the enterprise [2, p. 424; 6, p. 206].

Each of the above mentioned methods of arranging the economic security of an enterprise is characterized by its own content and a set of functional criteria. The application of these methods will allow full and optimal use of all the resources in a single algorithm to counteract the external and internal threats for the enterprise.

Thus, the analysis of the potential threats and their negative impact on the service sector enables the enterprise management to identify the interactions between the most typical factors of the threats, to assess their impact on the activities, and it will allow to anticipate the emergence of the most dangerous threats for the service sector and take preventive measures.

However, in today's market conditions, the provision of economic security of the services sector is complicated by certain factors, namely a lack of resources, the impossibility to predict changes in the external environment, miscalculations in the management sector.

Thus, ensuring economic security for the services enterprise implies a set of measures and a clear system for organizing their implementation and control, which, in its turn allows to achieve the highest level of the enterprise economic security. The level of the economic security of enterprise, in its turn, depends on how effectively an enterprise prevents internal and external threats and eliminates

the consequences of their negative impact on the the enterprise functioning.

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## MODERN CHALLENGES IN ACHIEVING FOOD SECURITY

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In Ukraine food security is considered to be one of the key problems in the formation of a holistic concept of the national security. Without a well-established and reliable system of food supply, the country becomes increasingly dependent on other states. Therefore, in the light of globalization processes a balanced state strategy in this sphere can not only significantly improve the overall economic situation in the country, but also strengthen its role in the international economic

environment, and vice versa, the unconstructive influence on the food supply system can cause aggravation of public problems, loss of domestic and foreign markets by the domestic producers and the formation of import dependence of the national economy.

It seems important to pay attention to the fact that food security is inseparably linked with the existing political and economic systems, as well as with peculiarities of management and national traditions. Today, such a problem also exists in Ukraine, but, above all, as a socio-economic one.

Food security is an important economic category inherent in every economic system. Without food, as it is known, no ethnic group is able to exist and survive.

In the modern scientific literature, there is no single approach to the definition of the category of “food security”, which is explained, first of all, by the complexity and multidimensionality of this concept.

On the basis of the detailed analysis and study of the existing scientific approaches on this issue, presented in various scientific publications, it is important to allocate the following peculiarities of the definitions of the term “food security” (See Figure 1).

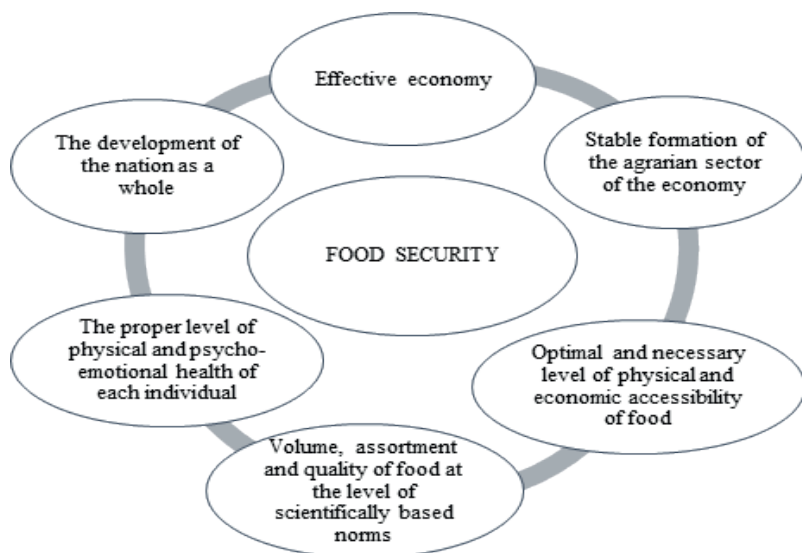


Figure 1. The essence of the definition of “food security”

Food security is a multidimensional economic category, which includes: economic, political, social, environmental, production, quality, innovation, education, resource component. Therefore, the successful solution of the issue of ensuring food security should be represented by a set of measures for the effective

production, storage, processing and sale of food at a country level. In this context, we consider it expedient to emphasize that only a competitive agricultural sector can be the basis for the formation of the national food security.

It is believed that the system of food security of the state should be based on the principles of self-sufficiency, independence, stability, accessibility of food (physical and economic one) for the population. At the same time, food quality and safety problem is not given proper attention. It is well known that the solution of the food problem depends not only on the quantitative provision of the population with food, but to a large extent on their quality. 'In the present-day context this problem is becoming of priority importance and of special urgency, since the safety and quality of food largely depends on the life and health of people [1].

One of the most important social indicators of social progress, as well as the potential for economic growth and security of the state, which occupies a leading place in the system of values of any civilized country, is the health status of the population that reflects the nation's well-being, its socioeconomic, ecological, demographic, sanitary and hygienic situation and so on.

Health "contributes" to the economy (both at the individual level and at the country level, especially in the high-income countries) due to increased labor productivity, labor supply, skills and savings that are made available for investment in physical and intellectual capital [2]. The United Nations (UN) has chosen the health and freedom of citizens as comparative indicators of the level of social progress in the countries with different types of culture and society development. Since 1990, the UN regularly assesses the well-being of the countries with the help of the Human Development Index (HDI) in order to shift the focus of the economy development from the accounting of national income to people-centered strategies only [3].

The HDI is intended to become an indicator of how the state uses its material wealth in favor of the population, that is, the social development of the country. With the accelerated aging of the population, the most modern demographic challenges to human development in Ukraine are closely related. Thus, for example, in 2017, the proportion of people over the age of 65 years old was almost 16,12%, and the population was estimated as "very old" (according to the UN scale, the old population is considered to be when the share of the country's population in the above-mentioned age is more than 7%) [4, p. 17]. It is expected that in the coming decades this process will progress, and by 2050 the proportion of people over 65 years old will exceed 24% [5, p. 53].

The most meaningful indicators for assessing the current situation in Ukraine are the indicators of the death rate of the country's population. Thus, the total mortality rate of population for the last five years is kept at the level of 14,5 cases per 1000 population, against 6,5 cases in the countries of the European Union. According to the latest statistical data, in January-November 2017 the population decreased by 181,5 thousand people. At the same time, the number of deaths significantly

exceeds the number of births in Ukraine: 64 deaths per 100 deceased. As in previous years, cardiovascular diseases were the leading cause of people death in 68% of cases, followed by malignancies – 14% and third place in this list was occupied by various external causes (trauma, poisoning, etc.) – 6% [6].

As for the food ration structure, it should normally contain at least 100 grams of protein per day. Nutrition, which lacks not only calories, but also proteins, especially animal origin, as well as fats, vitamins, trace elements, is called inferior. The inadequate nutrition of a large part of the population of the developing countries, and a certain proportion of the poor population in other countries, is an important reason for the low life expectancy and diseases caused by protein and caloric shortages, acute shortages in the body of vitamins and minerals. The presence or absence of food affects the physical and psychological state of people, and provides a level of social and political tranquility in the state [7].

The unfavorable situation in the mortality rate of the population of our country is due to a number of reasons: the low living standards of the vast majority of the population, as well as the crisis state of the public health system caused by socio-economic transformations in the state, and the devaluation of health by both the state and the citizens of Ukraine. Annual report on the health of the population, the sanitary and epidemiological situation and the results of the health care system in Ukraine (2017) concluded that “in the current crisis conditions of the development of the Ukrainian state, one should not count on positive dynamics of life expectancy in the short-term period of time” [4, p. 30].

The current challenges to the country's food security are due to changes in the social and economic situation, reforms in the main sectors of the national economy, uncertainty of the state policy on the development of the agro-industrial complex in general and the priority of its separate branches, as well as the contradictory views of different branches of government at different levels of government in terms of purpose, forms and methods implementation of the agrarian reform. In addition, an institutional support is imperfect in terms of solving problems of state regulation of economic relations, the formation of the market environment and its infrastructure, observing price parity, and reducing the pressure of monopolized industries in agriculture [8].

In the context of integration development, issues related to the regulation of food safety at the level of individual countries are top priority and require constant attention, as evidenced by international, in particular European practice. The root cause of the emergence of threats to the quality and safety of food raw materials and food products is the complexity of the environmental situation in virtually all regions of the world associated with the direct human-induced activities, in particular, the increase in the number of chemical, physical, biological origin pollutants. In Ukraine, the situation is complicated by the use in the food industry of excessive amounts of synthetic chemicals as technological regulators of the structure, organoleptic, physicochemical and other properties of food products. As a

consequence, the level of quality / safety of food products in the domestic market is rather low, it does not meet modern European standards and standards and requires justifications at the level of state regulation using scientific principles and principles of safety management, innovative mechanisms for their practical provision [9].

According to the Law of Ukraine “On Safety and Quality of Food Products”:

- the quality of a food product is a combination of the properties of a food product that is determined by its ability to meet the needs of the human body for energy, nutrients and flavors, safety for its health, stability of its composition and consumer properties during the period of suitability for consumption;

- food safety is the absence of toxic, carcinogenic, mutagenic, allergenic or other unfavorable for the human body effects of food products when consumed in the accepted quantities, the boundaries of which are established by the Ministry of Health of Ukraine [10].

Achieving the necessary quality of food requires the appropriate production conditions, taking into account the influence of various factors on the provision and improvement of quality, and therefore, on food security as a whole.

Thus, it can be concluded that the problem of food quality and safety really exists. Its solution is of a complex nature, which requires taking into account industry-specific features of quality formation at all stages of agricultural production, processing, storage, transportation and sale of finished products. In order to improve the quality and safety of food, it is necessary to improve the regulatory framework governing food quality and safety; continuation of the harmonization of international standards, especially in the method of monitoring the quality and safety of products; ensuring that technical specifications comply with applicable laws and standards; taking into account the quality and safety indicators of food products when justifying the system of food safety indicators [1].

So, the factors of food quality and safety are gradually gaining priority, along with such factors as the physical and economic availability of food for the population.

Everyone should be sure of the quality of food that falls on the table of each Ukrainian family. The state, as a guarantor of the development of a healthy, active and productive society, must deal with the above-mentioned tasks. In the interests of preserving and strengthening the nation's health workforce, an adequate nutrition is necessary for the population, taking into account natural and economic conditions, demographic characteristics, the type of labor activity and national traditions.

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## **MANAGERIAL ASPECTS OF THE ACCOUNTING POLICY OF THE ENTERPRISE**

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The problems that arise in the process of economic globalization make it necessary to create a qualitatively new management system and an adequate accounting system at the enterprises of various forms of ownership. Practice confirms that the existing system of accounting is not able to satisfy completely the information needs of its owners and meet the requirements of investors, creditors, managers and other users because of its limited nature. Currently, reorientation of the accounting system to the needs of the enterprise management system becomes extremely urgent.

Accounting policy is an internal regulatory document which is intended to become the basis for the reporting formation that is particularly important for the enterprise management needs. A well-defined accounting policy significantly

influences the efficiency of enterprise management, therefore, in each enterprise, taking into account the specifics of its activities, such an accounting option should be chosen that can provide the most complete implementation of management functions.

Theoretical, organizational and methodological aspects of formation of the accounting policy of the enterprises are considered in the scientific works of such well-known scientists as R. Alborov, A. Banayev, P. Bezrukih, F. Butinets, T. Voitenko, S. Golova, Z. Gutsayluk, N. Goncharova, P. Zhitnyi, A. Kashaev, V. Kulik, S. Levitskaya, N. Malyuga, B. Nidles, M. Pushkar, V. Sopko, M. Shchirba and others. Today, scientific discussions continue on the feasibility of approving a single accounting policy and drawing up unified reporting for the needs of enterprise management. The opinions of scientists on this issue are sometimes completely opposite from total denial to recognition of the need to approve a single accounting policy. On the basis of the analysis of the regulatory framework, as well as the data, widely presented in the scientific works of famous Ukrainian and foreign authors, it can be mentioned that the accounting policy of the enterprise has a significant impact on management decisions and requires ongoing research.

Today, a formal approach to formation of the accounting policy of the enterprise is increasingly observed. Therefore, the study of accounting policy issues determines the relevance of the main topic of this scientific research.

It should be noted that in the economic literature there are generally several types of accounting policies: the policies for financial accounting purposes, the policies for taxation purposes and the policies for management accounting purposes [1, p. 49; 2, p. 24].

According to S.O. Levitskaya, “business entities operate today with the following types of accounting alternatives: analytical, synthetic, operational, statistical, accounting data, tax, primary, time-table, dynamic, actuarial, social, creative and strategic ones” [3, p. 218].

We believe that since accounting is an information base for various types of accounting records and reports, the accounting policy should not only be unified for the enterprise’s accounting process, but also take into account the requirements of various users of accounting information. Obviously, an accounting policy contributes to the strengthening of accounting and analytical functions in the management of the enterprise and allows to react quickly to changes occurring in the process of the enterprise functioning.

During this study it was revealed that Ukrainian scientists offer their own definition of the accounting policy of the enterprise. However, taking into account the results of our analysis of various scientific publications concerning this subject, and our practical experience in this sphere, we believe that the notion of the enterprise’s accounting policy is currently being narrowly restricted. Moreover, it is aimed primarily at defining the principles, rules and procedures for financial accounting.



V.A. Kulik defines the accounting policy of the enterprise as “a system of methods of accounting and financial reporting that is used by the enterprise for information support of economic decision-making and presupposes the most reliable reflection of the facts of the enterprise economic activity” [4, p. 54].

Butinets F.F. notes that the accounting policy of an enterprise is “not just an aggregate of accounting methods selected in accordance with the conditions of enterprise’s management system functioning, but also a choice of accounting methods that allow using different options for reflecting the facts of economic life in accounting, depending on the goals set” [5, p. 10].

We wholeheartedly support the scientific position of M.S. Pushkar and M.T. Shirba, who argue that the accounting policy is a management mechanism for accounting, which is carried out on the basis of the selection and development by the enterprise of certain methods (options), rules and procedures for the organization and methodology of accounting, compilation and reporting based on generally accepted principles and specific activities of the enterprise for obtaining full, objective, reliable and unbiased information with the purpose of making reasonable management decisions by interested persons [6, p. 132].

T.V. Voitenko defines the accounting policy as a certain methodology of accounting, which was chosen by the enterprise in accordance with established norms and features, and is aimed at achieving its goals and objectives, and is also used to ensure the reliability of financial reporting and a quality management system [7, p. 15].

In the course of this study, we consider it expedient to consider various approaches to defining the essence of the notion “accounting policy of the enterprise” in national and international legal acts of different countries of the world

International Accounting Standard 8 “Accounting Policies, Changes in Accounting. Estimates and Errors” points out that accounting policies are the specific principles, bases, conventions, rules and practices applied by an entity in preparing financial statements [8].

Methodical Recommendations of the Applying of the Accounting Policy of the Enterprise [9] provide that “the accounting policy is an integral part of the organization of accounting in the enterprise”.

The Law of the Republic of Armenia “On Accounting” provides the following definition of this concept. Accounting policy is a system for collection, registration and consolidation of monetary information on stock and flow of assets, ownership capital and liabilities of an organization carried out by means of a comprehensive and on-going documentary accounting of all business operations [10].

According to the Law of the Republic of Moldova “About Financial Accounting”, accounting policies can be described as a set of the fundamental principles, quality characteristics, rules, methods and methods approved by the subject’s management for financial accounting and creation of financial statements [11].

The Law of the Republic of Belarus “On Accounting and Reporting” states that

accounting policy is “a set of organizing and conducting the accounting adopted by the enterprise” [12].

The Law of the Republic of Kazakhstan “About Financial Accounting and the Financial Reporting” [13] defines the accounting policy as the “specific principles, bases, regulations, rules and practices, accepted for application by individual entrepreneur or organization for maintenance of accounting and preparation of financial reporting in accordance with requirements of the legislation of the Republic of Kazakhstan on accounting and financial reporting, international or national standards, international standards for small and medium business and model chart of accounts of accounting, based on their needs and features of activity”.

In accordance with the Law of Ukraine “On Accounting and Financial Reporting in Ukraine”, the accounting policy is a set of principles, methods and procedures used by the enterprise for accounting, preparation and presentation of financial statements [14].

In our opinion, the definition of accounting policy in national and international standards limits the functions of the accounting policy of the enterprise in the process of preparation and presentation of financial statements and does not affect the significance in solving specific managerial tasks.

Therefore, based on the study findings, we can argue that the accounting policy (internal document or a set of tools and methods of accounting and financial reporting, or a set of interrelated standards of the current legislation) serves as the basis for the organization of accounting in the enterprise and is considered to be the initial link in the process of creating information for management needs.

Today the formation of accounting policy at Ukrainian enterprises has a number of problems that arise already at the very beginning of work on the formation of accounting policy, namely, when determining the priority areas for creation an accounting system at the enterprise.

Thus, there is a significant dependence of management decisions on the quality of accounting information. The formation of an accounting policy for the needs of enterprise management is the interrelation of specific principles, rules and methods, used by the enterprise for the preparation and presentation of financial statements that significantly affect the evaluation and decision-making processes by interested users. Therefore, the main objective in the process of the development and implementation of the enterprise’s accounting policy should be the formation of the complete, reliable and unbiased information for management needs.

Consequently, the main problems of formation of the accounting policy of an enterprise for its management system requirements are the following ones:

- ignoring changes in regulatory documentation and the absence of proper display of them in the Accounting Policy Statement;
- formality in drafting the Regulations on Accounting Policy, and the unreasonableness of the elements of this policy and duplication of certain clauses of normative documents;

- the lack of structuring of the Regulation on accounting policy, incomplete coverage of the issues of accounting for individual objects;
- the accounting policy is not developed by types of accounting at the enterprise;
- lack of development of the accounting policy for the formation of internal management reporting.

The accounting policy for the purposes of management accounting should include: a cost accounting option; a cost accounting system; a method of cost accounting and costing of products; an order of formation and list of prices; a list of cost centers and responsibility centers; a list of cost objects, calculation objects and calculation units; a list and composition of the articles of calculation of the production cost of products; a list and composition of variables and permanent general production costs; a basis for distribution of general production costs; a variant of the consolidated accounting of production costs; evaluation of finished products; an estimation of balances of work in process; an income accounting method; a working plan of accounting calculation of costs, revenues and financial results; a list of plans and budgets; the registers of management accounting; and, finally, the structure and the forms of internal reporting, the frequency of their completion and submission by responsible persons.

The practical application of the above-mentioned objects and the accounting policy elements in the system of management accounting will allow implementing a reasonable assessment of the activities of the responsibility centers and their contribution to the overall performance of the enterprise.

Thus, we can conclude that the problems and proposals discussed above should be taken into account when developing specific measures aimed at optimizing the accounting policies of various enterprises, and eliminating these problems in the formation of accounting policies at the enterprises will contribute to the validity of accounting records in order to make rational management decisions by end users of the financial statements produced by the enterprises.

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## ECONOMIC AND SOCIAL ASPECTS OF AGRICULTURAL LAND USE IN UKRAINE

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Ukraine has a significant land-resource potential. As of January 1st, 2016, the land fund of Ukraine is 60,3 million hectares or about 6 % of the territory of Europe [5, p. 63]. Agricultural lands amount approximately 19 % of the total European, including arable land – 27 %. The index of agricultural land per one person is the highest among European countries and amount 0,9 hectare, including 0,7 hectare of arable land (average European countries – 0,44 and 0,25 hectare, respectively) [6].

The total area of agricultural land is 42,7 million hectares or 70 % of the total area of the country, and the area of arable land is 32,5 million hectares or 78.4 % of all agricultural lands [5, p. 63]. In the structure of agricultural lands of enterprises and citizens, certain differences are observed due to market orientation and different development of the livestock sector (Pic. 1, Pic. 2). In particular, in the structure of enterprises, the share of arable land is 93,9 % and 3,2 % of pasture, and in the structure of land use of citizens is 74,2 % of the arable land share, 13,8 % of pasture, 7,4 % of hay plants, perennial stands – 3,9 %.

Such a structure of land resources of the country and land use leads to significant imbalances, the deepening of which may pose a threat to the environment and the living environment, as well as the efficiency of economic activity, sustainable development of the national economy in general.

In Ukraine more than 92 % of the territory is used for economic use. Extremely high level of cultivation of the territory is more than 54 % (in the developed countries of Europe it does not exceed 35 %). The actual forest area of Ukraine is only 16 %, which is not enough to ensure ecological balance (the average indicator of European countries – 25-30 %).

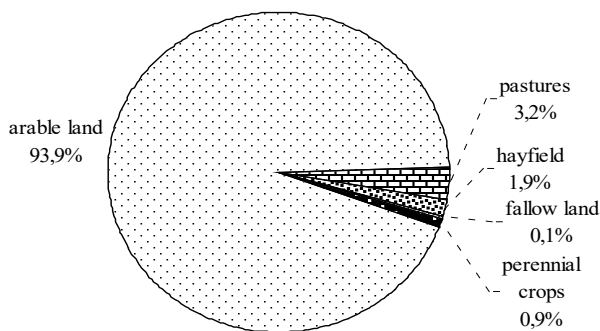


Fig. 1. Structure of agricultural land of agricultural enterprises on 1 January 2016  
*Source: it is built according to the data [5, p. 64]*

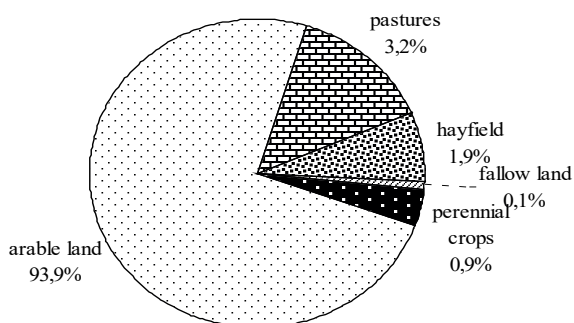


Fig. 2. Structure of agricultural land of individuals on 1 January 2016  
*Source: it is built according to the data [5, p. 64]*

The area of agricultural lands of agroforming in 2016, as compared to 2000, decreased by 39,1 % and amounted to 20,746.9 thousand hectares, including land holdings of state enterprises – by 97,1 %, and non-state enterprises increased by 9,9 times.

Among the agricultural enterprises of Ukraine 4,5 % of the land belongs to state enterprises, respectively 95,5 % – to non-state enterprises (table 1).

Table 1

**The structure of agricultural lands by categories of  
landowners and land users in Ukraine**

Indexes	Years					2016 (+, -) from	
	2000	2010	2012	2014	2016	2000	2010
Agricultural enterprises	100	100	100	100	100	x	x
state	6,2	5,0	4,7	4,6	4,5	-1,7	-0,2
non-state	93,8	95,0	95,3	95,4	95,5	1,7	0,2
Individuals	100	100	100	100	100	x	x
Including private peasant small-holdings and keeping of dwelling house and plots for farm structures	50,6	31,1	31,8	31,8	32,2	-18,4	0,4
commodity output	27,0	59,2	58,7	59,4	59,1	32,1	0,4
collective and individual gardens	2,1	1,2	1,2	1,2	1,2	-0,9	0,0
collective and individual kitchen gardens	3,5	1,2	1,2	1,1	1,1	-2,4	-0,1
hayfields and pastures	16,7	7,3	7,1	6,5	6,3	-10,4	-0,8

*Source: calculated according to the data [5, p. 640]*

At the same time the agricultural lands of citizens increased by 2.5 times in 2016 compared to 2000 and amounted to 15706,4 thousand hectares. In the structure of agricultural lands of citizens, the largest share belongs to commodity production – 59,1 %, which is by 32,1 % more than in 2000 and indicates significant structural changes in land use of citizens. At the same time, the share of land under private peasant farms and plots for the construction and maintenance of residential buildings increased by 5,2 %, the share of land that is hayfield decreased by 10,4 %, the share of collective and individual gardens – by 0,9 %, of collective and individual cities – by 2,4 % to 1,1 %.

Currently, the most active participants in the process of consolidation of agricultural land are medium-sized agricultural holdings with a land bank size of 20 to 40 thousand hectares. Large companies mainly focus on maintaining control over lands and improving the efficiency of their use. In 2016 there were about 2,9 million hectares of agricultural land in use of the largest agricultural holdings in Ukraine [7].

Against the background of growing agroholding, the number of private peasant farms has a steady tendency to decrease. In our opinion, in the following years this trend may increase in connection with the Government's intentions to introduce private peasant farms in the legal field in order to introduce taxation of the results of their activities. Despite the decrease in the number of peasant farms, the amount of

cultivated land increased due to land for commodity agricultural production (table 1).

Today almost 1,4 million hectares of dismantled land plots are not used. About 1 million people do not cultivate or rent land. As a result, land part (shares) with a total area of 4,8 million hectares or about 12 % of the total area of agricultural land are not used.

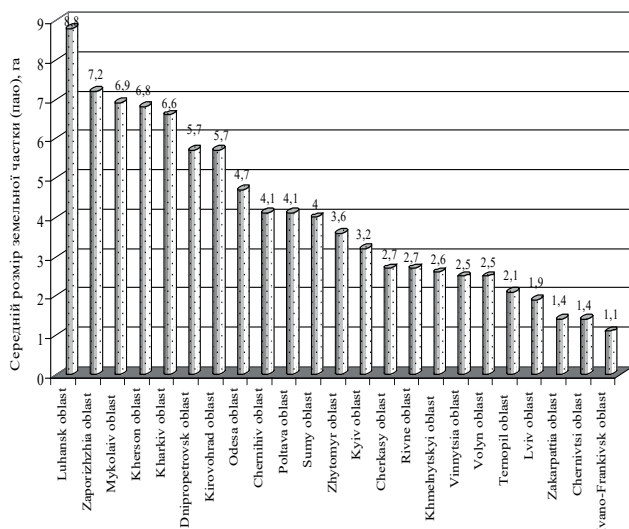


Fig. 3. The average size of a land part (share) in terms of regions  
Source: it is built according to [6]

1,2 million citizens joined land plots and land shares with an area of 4,7 million hectares to private farms without a legal entity or 17,3 % of decomposed land. Self-management on land has shown a desire for 1,2 million hectares of land shares owners. 17,1 million hectares, accounting for more than 62 % of the decomposed lands, handed over for rent. The largest proportion of decomposed land not involved in economic cultivation or used without proper documentation is in Zhytomyr, Lviv, Chernihiv, Rivne and Kyiv oblasts [6].

The average land part (share) in Ukraine is 4 hectares.



Table 2

### The structure of crop area of agricultural crops in Ukraine

Indexes	Sown area							Absolute deviation of structure (+,-), %
	1990		2000	2005	2010	2016		
	thousand hectares	%	thousand hectares	thousand hectares thousand hectares	thousand hectares	thousand hectares	%	
Cereals and legumes	14583	45,0	13646	15005	15090	14401	53,3	8,3
including wheat	7577	23,4	5619	6665	6451	6218	23,0	-0,4
barley	2729	8,4	3985	4500	4505	2867	10,6	2,2
corn for grain	1234	3,8	1364	1711	2709	4286	15,9	12,1
Technical cultures	3751	11,6	4187	5260	7296	8852	32,8	21,2
including sugar beet (factory)	1607	5,0	856	652	501	292	1,1	-3,9
sunflower	1636	5,0	2943	3743	4572	6073	22,5	17,4
soybeans	93	0,3	65	438	1076	1869	6,9	6,6
colza	90	0,3	214	207	907	455	1,7	1,4
Potatoes and vegetable-melon cultures	2073	6,4	2277	2041	1967	1841	6,8	0,4
Fodder crops	11999	37,0	7063	3738	2599	1932	7,1	-29,9
Sown area – total	32406	100	27173	26044	26952	27026	100,0	x

Source: calculated according to [4, p. 68; 5, p. 89]

On the basis of private property, as of 1.11.2016, 47697 agroformations of market type were created in Ukraine, where 8700 units are business associations (18,2 %), private enterprises – 3752 units (7,9 %), production cooperatives – 738 units (1,5 %), farms – 33682 units (70,6 %), state enterprises – 222 units (0,5 %), enterprises of other forms of management – 603 units (1,3 %). In 2016, compared to 2002, the share of private enterprises and farms increased [5, p. 171].

Reducing the natural fertility of soils can not be offset by increasing the volume

of mineral fertilizers. On the contrary, today there is an open destructiveness of farming in the agrarian sector. In the context of the reduction of the livestock sector, in particular the reduction of cattle population both in households and in agricultural enterprises, the volume of manure putting has decreased significantly, as well as the practice of straw burning after harvesting, leads to lossless land energy losses.

Particularly threatening in this context is the problem of deteriorating quality of agricultural land. On the basis of agro-chemical data, a decrease of humus content in soils (0,5–0,6 t/ha annually), which increases soil mineralization, leads to a decrease in the fertility of the land. As a result, the annual lack of agricultural products is about 3 million tons of conditional grain. Over the past 20 years, the humus content has decreased by 0,22 %, which is estimated as 453,4 billion UAH in terms of the state [30].

In addition, the decline in the fertility of agricultural land is due to the imperfection of the structure of crops, which has undergone significant changes over the past 25 years in order to increase the share of crops that are in high demand on the market. Thus, for the period from 1990 to 2016 the share of technical crops in the structure of sown area has increased by 21,2 percentage points (table 2).

In particular, over the analyzed period, the sown areas of sunflower increased by 3,7 times, soybeans – by 20,1 times, colza – by 5,1 times. In the group of technical crops only the growth of sugar beets was reduced by 81.8 %. Grain and legume seeds after a slight decline in the late 90's today actually reached the level of 1990. At the same time among the grain crops, the greatest increase occurred in the cultivation of corn for grain, whose area has increased by 3,5 times. The reduction of sown areas is observed only under potatoes, vegetable and melon cultures and fodder crops.

The growth of the share of intensive crops (corn for grain, sunflower, colza) in the structure of the crop area violates the principles of balanced land use. This is due to the fact that the management of agrarian marketing processes is oriented only on the profitability criterion and only on the interests of the private owner in agriculture.

There have been significant changes in the structure of gross agricultural production. Thus, the share of agricultural enterprises in the structure of gross production decreased from 70,4 % in 1990 to 54,0 % in 2016, which indicates an increase in the role of households in agricultural production (Fig. 4).

This is due including to the results of the land reform, which gave peasants access to the possession and disposal of their own land plots, as well as by leasing land for small-scale production as a source of income.

The efficiency of land use in agriculture is still low. In particular, as of 2016, more than 40 % of the land was used by agricultural producers at a fairly low level (the coefficient of land utilization is from 0,35 to 0,5, which corresponds to the yield of grain and legume from 22 to 40 hundredweight per hectare). The lowest level and efficiency of land use is observed in enterprises of the state form of management. In particular, the level of profitability of agricultural production in state enterprises

in 2015 was only 6.4 %, while the profitability of non-state enterprises was 30,5 %.

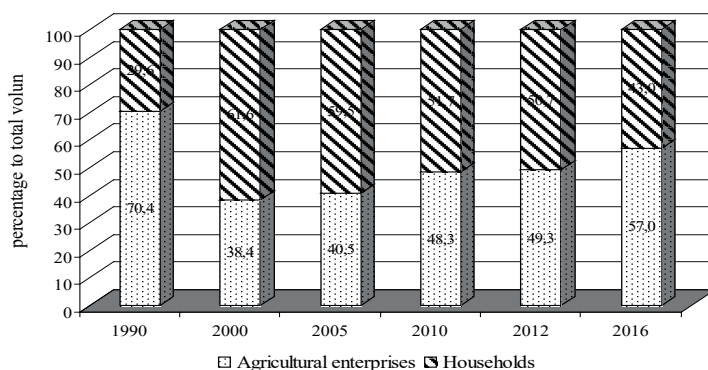


Fig. 4. Structure of production of gross agricultural products in Ukraine, 1990–2016, %

Source: calculated according to data [4, p. 44; 5, p. 460]

Table 3

### Dynamics of agricultural crops in Ukraine, c/ha

Agricultural crops	Year						2016 in % to	
	1990	2000	2005	2010	2012	2016	1990	2000
Cereals and legumes	35,1	19,4	26,0	26,9	31,2	46,1	131,3	171,4
including wheat	40,2	19,8	28,5	26,8	28,0	42,1	104,7	157,1
barley	33,8	18,6	20,6	19,7	21,1	33,0	97,6	167,5
corn for grain	38,7	30,1	43,2	45,1	47,9	66,0	170,5	146,3
sugar beet (factory)	275,7	176,7	248,2	279,5	410,8	481,5	174,6	172,3
sunflower	15,8	12,2	12,8	15,0	16,5	22,4	141,8	149,3
soybeans	11,3	10,6	14,5	16,2	17,1	23,0	203,5	142,0
winter colza	15,0	10,3	17,0	17,5	22,0	26,5	176,7	151,4
Potato	116,8	121,6	128,4	132,5	161,0	165,8	142,0	125,1
Vegetable crops	149,0	112,3	157,1	173,6	199,2	210,5	141,3	121,3

Source: calculated by the author according to [4, p.74; 5, p.102]

According to the data of the table 3 the yield of crops has increased, which is due to the improvement of breeding work, an increase in fertilization rates and intensification of technologies, but its level is considerably lagging behind the average European. In particular, the yield of grain and leguminous crops in Ukraine in 2016, as compared to 1990, increased by 31,3 % and equals 46,1 hundredweight/

ha due to the increase in the grain yield of corn. The yield of sugar beets increased by 74,6 %, sunflower seeds – by 41,3 %, soybeans – 2 times, winter colza – by 76,7 %.

The conducted research shows that during 2012–2016 agricultural enterprises in the main commodity crops we also observed the tendency of increase of productivity level. In particular, the highest average annual rate of yield growth is recorded in such crops as barley – 11,8 %, wheat – 10,7 %, corn for grain – 8,3 %, sunflower – 7,9 %, and soybeans – 7,7 %. At the same time, low crop rates are characterized by such crops as winter colza and sugar beet.

Thus, land use in Ukraine is characterized by the following features:

- 1) high level of mastering of the territory (more than 92 %);
- 2) increase the area of agricultural land by the use of citizens for the purpose of commodity production, which led to structural changes in gross agricultural output;
- 3) under-utilization of a significant share (about 10 %) of the total area of land as a result of land degradation, since successors do not always want to cultivate the land independently or rent it;
- 4) private enterprises and farms became the main among different forms of farming on the land;
- 5) consolidation of lands by agroholdings;
- 6) the deterioration of the quality of arable land due to the rapid expansion of intensive crops, which can not be compensated by the increasing application of mineral fertilizers;
- 7) low efficiency of the use of land resources in agriculture due to depreciation of material and technical base, violation of technological processes, reduction of livestock sector, low level of use of information technologies and lack of financial resources.

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## **RESOURCE-SAVING IS THE BASIS OF SUSTAINABLE DEVELOPMENT OF AGRICULTURAL ECONOMY**

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The ensuring of domestic agricultural enterprises competitiveness in the dynamic market environment conditions requires the development and implementation of their resource-saving development strategy. Such strategy should provide for growth of production and supply capacity of economic entities at the expense of the search for and realization of reserves of economy of production resources per unit of production [5, p. 134].

Currently, many types of domestic products cannot withstand competition in foreign and sometimes in domestic markets due to the high level of unit costs of the used production resources. Unit costs of energy are particularly significant, in consequence of which the energy intensity of a large part of domestic products is several times higher than this index for the similar products produced in the developed countries of the world.

For a long time, intensive technologies have been one of the main directions of increasing the crop production efficiency. The peculiarity of intensive technologies was that in any branch of agriculture, as a rule, an increase in the cost per hectare or head of cattle was required. At the same time, the disadvantage of this decision was that not all farms paid off additional investments by output of products at the same time reducing its cost [1].

Unlike intensive technologies that require significant resources, resource-saving technologies should be based on the minimum necessary use of chemicals while using as fertilizers by-products, microbiological preparations, growth promoters.

Modern resource-saving technologies allow in the Forest-Steppe of Ukraine to obtain a stable yield of winter wheat at the level of 45-50 centners per hectare, spring wheat – 35-40 centners per hectare, rye – 40-45 centners per hectare, triticale – 45-50 centners per hectare, barley and oats – 35-40 centners per hectare. This achieves high grain quality. According to the Institute of agriculture of UAAS the volume of introduction of these technologies in Ukraine can be 2 million hectares with achievement of annual economic effect in 20 million UAH [6].

The lack of funds from agricultural producers hinders the widespread use of intensive technologies, therefore, in the current conditions, the use of resource-saving technologies aimed at reducing the material consumption of products and production processes, as well as reducing direct labor costs becomes particularly important.

Therefore, resource-saving should be considered from the standpoint of expanded reproduction, the resources movement in the production process, as a constantly repeating process. Firstly, the essence of resource-saving is to conserve the socially necessary labor and it shows itself in the reducing production costs, increasing profit margins, reducing anthropogenic impact on the environment; secondly, this process is determined by such specific forms of manifestation as material-saving, land-saving, labor-saving, energy-saving etc.; thirdly, resource-saving should be seen as a constantly repeating process achieved through innovations, along with more efficient use of traditional production factors. Its result is the release and saving of resources, reducing production costs, increasing profits, achieving positive economic effects [3].

Innovative technologies are economic models using elements of biological farming and optimization of production processes achieve a high degree of control, predictability and efficiency of crop production. In contrast to traditional technologies, innovative technologies of crop production are based on the use of energy-saving and resource-saving systems of agriculture, with such elements as: compliance with biological and zonal features of growing crops, taking into account soil and climatic conditions; refusal to perform ploughing; minimization of the main tillage in the direction of reducing the number of agrotechnical operations and combining several operations in one technological process, which reduces the processing time of cultivated areas by 70-80 % and provides production costs savings on average five times, including the cost of fertilizers by 30-40 %, fuel-oil materials – by 60-70 %, the purchase of agricultural machinery – by 80-90 % [3].

The necessary condition for such technologies is a high culture of farming, crop rotation, availability of machinery and qualified personnel. The main directions of the introduction of resource-saving technology in agriculture are:

- application of the most rational schemes of plant placement, allowing more efficient use of land, machinery, working capital;
- use of high-yielding zoned varieties of crops; use of the most productive breeds of animals;

- optimization of plants nutritive regime by depositing the required amount of fertilizers; use of balanced feed rations at the lowest funds cost;
- reduction of the number of agricultural practices based on their combination in combined aggregates;
- rational use of material, labor and financial resources; normalization of costs per hectare area, cattle head.

In the complex of energy-saving technologies, pride of place goes to the method of mineral fertilizers application. Reducing the resources cost provides local application of fertilizers, for example, by seeders during sowing and maintaining growth during the growing season. Saving of energy resources achieves due to a clear organization of sowing [1].

Our calculations show that the transition of a number of crop production sectors to the principles of resource-saving can reduce the cost of seeds on average by 50-60 %, fertilizers – by 5-10 %, electricity – by 20-40 %, oil – by 40-60 % [4, p. 48] (table 1).

*Table 1*

**Costs of agricultural production in the context of different types of technologies, UAH / t**

Types of costs	Winter wheat			Sunflower		
	Conventional technology	Resource-saving technology	Divergence, %	Conventional technology	Resource-saving technology	Divergence, %
Seed, centners	10	5,3	53,3	1,0	0,4	40
Fertilizers, centners of active substance	6,25	5,6	88,9	18,8	17,5	93,3
Waste Chemicals				-	-	-
- solid, kg	6,25	3,6	56,9	0,4	0,2	40
- liquid, l	2	6,4	320	-	17,5	-
Electricity, kW per hour	20,4	12,6	61,7	40,4	32,5	80,5
Petroleum products, centners	2,4	1,5	61,8	7,1	2,9	41,2

The elimination of seeds overspending by improving the quality of seed material, more careful adjustment of seeders allows to reduce the cost of grain seeds on average by

2.5-20.1 %, sunflower seeds - by 1.7-17.3 % [1].

In economic management market conditions, the product «seeds» acts as a specific knowledge-intensive and innovative product of agricultural production, as

it carries the potential for production efficiency growth. Scientists have estimated, and the world practice proved that yields and gross harvest of grain can be increased due to the quality of seed to 25-30 % [2, p. 16].

The main task of seed production in the current conditions of grain production development, first of all, should be providing producers with high-quality seed material in appropriate volumes, without overspending, without which the process of agricultural production recreation is impossible.

We will analyze the actual level of costs for seeds and planting material at agricultural enterprise and compare it with scientifically based standards (table. 2).

*Table 2*

**Costs of seeds and planting material at agricultural enterprise**

Indicators	Wheat	Barley	Oat	Corn	Sunflower	Soybeans
Seed costs, kg	32700	142700	11600	19000	4500	89000
Crop acres, ha	200	395	20	300	554	560
Actual seed costs, kg/ha	163,5	361,3	580,0	63,3	8,1	158,9
Normative level of seed costs, kg/ha	160-250	166-220	150-220	10-25	6-10	80-130

Table 2 data shows, that in the context of the studied crops, only winter wheat and sunflower seeds conform to the actual scientifically based standards of the cost of sowing material by the seeds weight. The other cash crops of enterprise considerably exceed the standard seeding rate.

Our research has shown that even within the conventional technology, there are significant reserves for increasing the enterprises profit by optimizing the specific costs of resources. To achieve the above results, while ensuring high production efficiency, without seed quality is almost impossible. Therefore, it is advisable to assess the impact of seed costs on the economic efficiency of agricultural production (table 3).

As can be seen from the table, in a typical agricultural enterprise, the actual seeding rates exceed the scientifically based standards for barley - by 64,2 %, oats – by 1,6 times, corn – by 1,5 times, soybeans – by 22,3 %.

The introduction of resource-saving technologies will lead to qualitative changes in the economic activity of enterprises, will help to improve their economic efficiency, reduce dependence on competitors. This technology is based on the integrated use of the latest science and technology achievements, provide all the conditions for the output of products. In crop production, this applies to the selection of optimal predecessors for this crop, the definition of soil preparation methods; the use of the most promising varieties and high-quality seeds; the use of necessary doses of fertilizers, herbicides; implementation of all agricultural operations with



the help of modern technology based on rational forms of labor organization.

Resource-saving technologies require a clear sequence and organization of agricultural activities, taking into account the characteristics of crops, as well as a certain set of agricultural machines and tools, advanced organization and remuneration of labor. Violation of the principles of proportionality, comparability, rhythmicity, threading and others leads to decreasing the effectiveness of resource-saving technologies.

*Table 3*

**Reserves of cost-saving for seeds of agricultural crops**

Indicators	Barley	Oat	Corn	Soybeans
Actual seed costs, kg/ha	361,3	580,0	63,3	158,9
Overspending seeds in comparison with the normative level, kg/ha	141,3	360,0	38,3	28,9
% for actual seeding rate, %	64,2	163,6	153,3	22,3
Costs of seeds and planting material, thousand UAH	97,0	8,0	191,0	909,0
Costs for 1 kg of seeds, UAH	0,68	0,69	10,05	10,21
The amount of possible cost-saving due to removing of seed overspending:				
- in terms of 1 ha, UAH	96,03	248,28	385,35	295,46
- in terms to the whole square, thousand UAH	37,93	4,97	115,61	165,46
Total amount of possible cost-saving, thousand UAH	323,96			

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## **THE MARKETING SYSTEM OF ENTERPRISES WHICH OPERATE IN THE SPHERE OF GRAIN STORAGE AND GRAIN PROCESSING**

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The contemporary understanding of the essence of marketing is related to the following aspects: on the one hand, it is a thorough, comprehensive study of the market demand, consumer tastes and needs with the aim of further product orientation to meet these needs; on the other hand, it is an active impact on the market and the existing demand, as well as on the formation of customers' needs and consumer preferences. The generalization of the approaches to the definition of the concept "agromarketing" and "marketing system" has allowed to substantiate the definition of agromarketing in the grain product subcomplex of the agroindustrial complex, which presupposes the organization and management of production and marketing activities of agricultural enterprises, cereal receiving points and agroprocessing enterprises on the basis of a comprehensive study of the grain market and its products for the purpose of profit-making through the comprehensive satisfaction of consumer demand. From the point of view of the institutional approach, the core of the marketing system in the grain product subcomplex of the agroindustrial complex is formed by the main subjects of marketing activities, which are as follows: grain producers, storage enterprises, primary and secondary grain processing. During their activities, they come into contact with other organizations (suppliers, marketing intermediaries, selected contact groups, wholesalers and retailers), which helps to promote their products to end-users. Consequently, a bilateral relationship takes place in this case. In addition, the functioning of this system is under the influence of macro environment factors unilaterally.

During this study, we have found that in the present day context a particular attention should be given to such important issues as the organization and functioning of marketing services, the development of marketing infrastructure and information marketing systems, as well as the development of marketing strategies in the grain product subcomplex of the agroindustrial complex of Ukraine and its regions. Today, various studies are conducted mainly on the formation of a price mechanism, the competitiveness of the grain product subcomplex of the agroindustrial complex

of the country, and the creation of an organizational and economic mechanism for its further functioning [1-7].

The grain product subcomplex is considered to be the one of the most important ones in the agroindustrial complex of Ukraine, because it fulfills two significant functions: the production of food grains for baking bread and bakery products, confectionery and pasta, and the production of feed grain and forage for livestock.

In contrast to other subcomplexes, this one covers not only preliminary, but also primary and secondary grain processing. As a whole, it is characterized by high mobility and the best opportunities for long-term storage of most types of products and their transportation over significant distances. In addition, it includes various industries and activities that, in conjunction with the above-mentioned characteristics, determine its marketing system components. Therefore, the organizational construction of the grain product subcomplex of the agroindustrial complex of Ukraine, in our opinion, can be represented in the following form (See Figure 1).

This scheme allows identifying the subjects of the marketing system of the grain product subcomplex of the agroindustrial complex of the country and the available marketing flows, which are as follows:

- 1) grain producers – elevator industry – transportation system organizations – grain traders – external market;
- 2) grain producers – elevator industry – primary processing of grain crops – wholesale and retail trade – final customers of the flour, cereals and mixed fodders production (the domestic and external markets);
- 3) grain producers – elevator industry – primary grain processing – secondary grain processing – wholesale and retail trade – final consumers of bakery products, confectionery and pasta (the domestic and external markets).

In our opinion, the essence of agromarketing in the grain product subcomplex of the agroindustrial complex of Ukraine is to organize and to manage the production and marketing activities of agricultural, grain-receiving and processing enterprises on the basis of a comprehensive study of the grain market and its processing products in order to generate profit for the comprehensive satisfaction of consumers' demand.

From this it follows that the subjects of agromarketing of the subcomplex of the agroindustrial complex of Ukraine are mainly agricultural enterprises of various forms of ownership that are engaged in the production of grain crops; grain receiving organizations; enterprises of primary and secondary processing of grain crops; organization of agrotechnical services; wholesale and retail trade intermediaries; suppliers of raw materials and technical means; advisory centers; consumers of products of grain processing enterprises.

Nowadays particular importance is acquired by legal factors of the macro environment of marketing. These factors allow not only to determine the status of the subjects of marketing activities, their rights and responsibilities, but also the possibility of using marketing tools, as well as to regulate the relationship between

agricultural producers and grain storage and marketing enterprises with marketing intermediaries, suppliers, contact audiences and competitors.

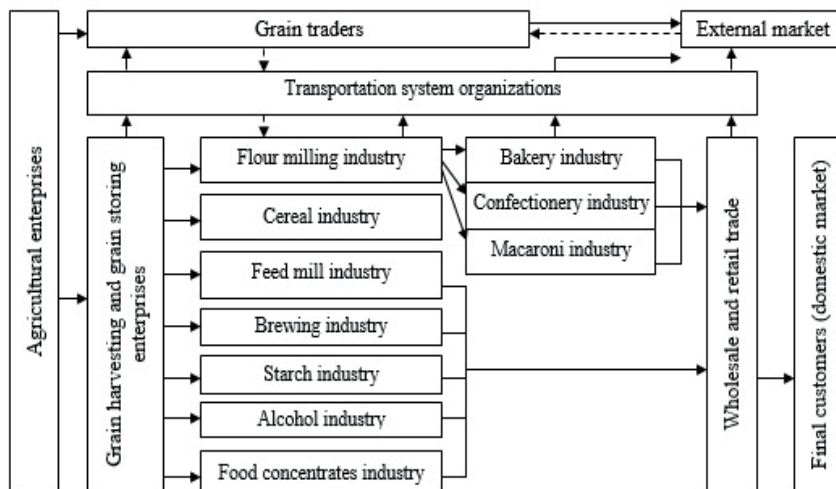


Fig. 1. Commodity flows in the grain subcomplex of the agroindustrial complex of Ukraine

Subjects of the agro-marketing system of grain products of the subcomplex of the agro-industrial complex should base their activities on certain approaches to marketing activities, that is, marketing concepts. The concept of marketing is a set of principles that form the basis of marketing, which is realized in various industries of production and economic activity. There are different approaches to the definition of the essence of the given concept [1-7]. A specific enterprise develops a concrete concept reflecting the desire to follow the main trends of economic development. And it is aimed not only at the enterprise's behavior on the market, but also on its internal structure as a whole.

In this case, the concept of marketing is considered to be a concept of enterprise management. Strengthening the role of marketing approaches to commercial activities today can be explained by the following reasons.

First of all, the modern market in many sectors of the economy, in particular the food industry, is represented by a significant level of competition. In order to achieve market advantages, an enterprise must better meet the needs of consumers than competitors do. In our opinion, this leads to the use of the concept of classical marketing in practical activity of enterprises.

Secondly, the current stage of the development of the productive forces is characterized by the complexity of production and technological processes, the

increase in the level of quality of goods that are produced. Therefore, in conditions of the saturation of the market with high-quality goods, enterprises are trying to improve the quality of services and increase the volume of services that they provide to customers. This leads to the growth of the role of service policy as an integral part of the marketing.

Thirdly, today consumers are inclined to buy goods of specific enterprises (branded goods). And, as research shows, they are ready to pay 10-15 % more for goods of enterprises that managed to create a unique corporate image. This leads to an increase in the role of marketing as a tool for creating consumer benefits.

The modern concept of marketing determines the further activity of the enterprise on the basis of information about consumer demand and its possible changes in the next periods. The enterprise must carry out its activities by focusing not on the possibility of production, but on the requests of consumers. Based on the above principles of marketing, modern enterprises have the opportunity to choose the goals of their future activities.

From the point of view of social importance, we consider it expedient to single out four alternative marketing goals: the attainment of the maximum possible high consumption, which contributes to the maximum growth of production, employment of the population; minimizing customer satisfaction; providing a wide range of goods and services or maximizing the choice of the final consumers; improvement of the quality of life.

Obviously, it is not possible to achieve these goals in an equal measure. Different goals can dominate the society at different stages of its development. In the past decade, in many developed countries, special attention from the state and various public organizations has been given to the need to address the problems of improving the quality of life of the population.

The solution of the set goals should be carried out on the basis of accomplishing of various tasks. The most important task of marketing is to ensure the maximum possible sustainability in the activities of the enterprise, its planned development and achievement of strategic goals.

In the process of marketing activities of the enterprise, some other specific tasks are also being solved, such as:

- providing timely and reliable information about the market, products, consumers and competitors;
- creation of goods that maximally meet the capabilities of the enterprise;
- ensuring impact on the consumer demand, the relevant market as a whole and the main competitors;
- planning and coordination of production, marketing and financial activities of the enterprise;
- marketing communications;
- analysis of marketing activities and monitoring of its implementation.

Based on the theory of marketing, organization and management, we can

argue that the function of marketing is a set of stable, isolated and specific areas of marketing activity, united by common actions in the preparation, adoption and implementation of decisions [9, 11]. During the research process, we identified four approaches to the marketing functions.

The first one is an analytical one, which is related to the study of a specific market, as well as the study of consumers, goods, commodity structure, internal environment of enterprise, and a complex research of competitors and intermediary companies as the main market participants.

The second production approach is concerned with organization of production, material and technical support, development and implementation of modern technologies, quality management of services, management of competitiveness of commodity products and services.

The third approach, which is the distribution and marketing one, is associated to the organization of the system of commodity circulation, the organization of the system for the formation of demand and sales of products, the organization of transportation and storage of products, and the implementation of targeted commodity and pricing policies.

The fourth approach is based on management and control functions only, which include the organization of operational and strategic planning, information support of marketing activities and marketing control.

In our opinion, the second group of functions (production) does not apply to marketing activities at all.

From the point of view of the American approach [8, 10], the marketing functions are presented in three groups, and they differ substantially from the domestic approach in the following way:

1) exchange functions (purchase, which provides for the search for sources of supply of products, as well as direct purchase to create stocks of raw materials; sale, which is directly related to the concentration of various activities, such as: retail, presentation of goods in storefronts, retail shelving, shop shelving, store shelving; advertising and other means of promoting products, selecting types of packaging components, packaging and channels of distribution, a good place to sell products);

2) physical functions (storage, transportation, processing activities);

3) assistance functions (standardization is the establishment and preservation of homogeneous parameters that are related to the quality and quantity of products; financing is the use of money for the implementation of various financial activities in marketing; risk is related to the assumption of risk; market intelligence (collection of market information) is the work to collect, interpret and disseminate various data necessary for the smooth implementation of the marketing process.

Thus, for agricultural enterprises, the marketing system will consist of three subsystems or the functional support of marketing activities, which is the link for the research of the market environment and marketing activities of the enterprise. In the marketing system of grain storage and processing enterprises, a fourth subsystem

is added to the three analogous marketing subsystems of the agrarian enterprises, through which the enterprise's activities are managed. This subsystem is primary one because of its ability to influence the functional maintenance of the marketing activities of the modern enterprise.

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# **FUNDAMENTALS OF THE IMPROVEMENT OF THE ENTERPRISE SALES ACTIVITY IN THE CONTEXT OF MODERN ECONOMIC CONDITIONS**

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Modern business conditions dictate their own rules to the business entities. To meet the periodically changing needs of the consumers, enterprises are forced to constantly improve the product quality and to optimize the sales mechanism for these products. In this connection, the effective organization of the sales system is of paramount importance. Consequently, the qualitatively organized control over the functioning of sales determines the vectors of the socio-economic activities of the enterprise.

In the complex process of creation, production and delivery of products to the final consumer, the sale of goods, as the final stage, plays a decisive role in the commercial activity of the enterprise. These indicators indicate the recognition or non recognition by the consumers of all those efforts that have been spent on the creation of the final product. Modern marketers note that it is expedient to solve the problem of organizing the marketing of products at the stage of formation of the strategic aspects of the enterprise policy management.

For this, taking into account the specific functioning of specific markets for goods and services, the most effective systems, channels and methodology for marketing products should be chosen. In fact, this means that the production process at the enterprise must initially be guided by the optimal methods and forms of marketing the finished product.

Sales management, therefore, is the main component of business activity, since the main goal of solving sales issues is to meet the actual needs of customers, to increase production volumes, to highlight marketing advantages, and to increase the net profit in the long-term period. All these factors together contribute to the successful operation of the enterprise in a particular business area.

Optimization of sales processes and the correctly chosen vector of sales policy implementation at the enterprise allows not only to increase its market share, but also to obtain a number of competitive advantages (for example, a reduction of a standard cost for sales processes at the enterprise). Under the marketing policy of an enterprise, one should understand the selection of the optimal forms and marketing methods necessary for the effective organization of the procedure for the sale of goods or services.

The current instability of the economic environment, the constant growth of risks and the political uncertainty of Ukraine have led to an aggravation of the problem of the effective organization of the enterprises' sales activities. Accordingly,



this problem was reflected in a number of scientific studies devoted to the search for new approaches to planning sales activities. So, recently a lot of interesting scientific research appeared, the authors of which made an attempt to investigate the theoretical and methodological aspects of this issue. In particular, in this context, it is worth mentioning the works of the following authors: Evans J., Berman B., Drucker P., Zalmanova M., Kotler P., Hershgen H., O'Shaughnessy J., Sorensen A., Kostoglodov D., Kharisova L., Podinovskiy V., Stigler G. [1-12] and many others. However, it should be noted that the main aspects of this issue are not described in many scientific papers. This fact partly determined the relevance of this scientific study.

If we consider the functional potential of this phenomenon, it is worth noting that there are several important functions assigned to the sales activity of an enterprise:

- to provide information monitoring for the definition of current needs of consumers at the local / regional / national level;
- to formulate, in accordance with the expectations of customers, a batch of products of certain volumes;
- to organize the processes of packaging and storage of products in warehouse premises (if necessary);
- to search for new channels of product sales periodically;
- to provide logistics and product transfer;
- to control intermediaries so that they do not go beyond the price limits set by the enterprise;
- to keep records of current stocks of products (goods) stored directly at the industrial enterprise level or its affiliates;
- to fix and summarize expectations of the final consumers and / or intermediate consumers regarding the quality of products (goods) and their value;
- to develop a methodological complex for improving the activity of an industrial enterprise in order to meet the needs of new consumers.

It is worth noting that the whole complex of coherently coupled ideas is influenced by the process of organization and sales of the industrial enterprise. First of all, here we are talking about such factors as: the specificity and quality of products (goods) or services offered to the consumer; the level of the production and technical base development; the price policy chosen by the enterprise; the main communication factors; a circle of potential clients; the level of qualification of employees of the enterprise; the use of innovative technologies in the process of production; the income level of potential consumers; representation of similar services or goods in the market.

In our opinion, the following measures will be able to significantly improve the enterprise sales activity in the long run:

1. Reforming of the existing system of sales planning of the enterprise.

At many domestic industrial enterprises, the regulated rate of sales does not match the chosen strategy of the development. In this case, we consider it expedient

to determine more precisely the strategy of enterprise development on the basis of the corresponding research of a certain segment of the market and making forecasts of possible volumes of production.

## 2. Ensuring the provision of high quality personnel support.

To optimize sales, it is necessary to reduce the costs foreseen for the financing of the structural units of the enterprise. The most suitable option for the development of such a scenario is the merging of separate units, the main lines of work of which are closely related to each other. In this case, particular attention should be given to the development of standards for the effective work of sales managers. First of all, here it is a question of their training to increase the level of competence, which can have various forms of implementation (master classes, trainings, periodic personnel qualification, etc.).

## 3. Optimization of the organization of sales activities.

In modern conditions, the enterprise should apply various methods of promoting products through Internet technologies. To do this, it is recommended to develop a special Web site, which will present the entire range of products offered, as well as the brief information about these products, which can be ordered online.

## 4. Continual improvement of product policy.

Despite the fact that this parameter was named only in the fourth position on this list, it should be considered as the first priority. It is common knowledge that the main goal of each enterprise is related to the maximum satisfaction of the needs of a potential consumer who needs products of such quality that will not damage his life and health. From this follows the fact that the products produced a priori must be high-quality, and therefore environmentally friendly. For example, food products should be produced without the use of GMOs or synthetic flavor enhancers, as well as the furniture should be produced exclusively from the natural wood without binders and chemical additions.

## 4. Local dependence of the sales activity of the enterprise.

It is clear that for industrial enterprises it is more expedient to serve the city in which its main productive capacities are concentrated. If the enterprise managed to meet the needs of consumers of this territory, its further marketing activities can be carried out at the level of the region. Consequently, the enterprise can reduce its current costs, and choose the right price policy. As a result, close competitors of the enterprise will be forced to leave this territory at all.

## 5. A price policy correlation.

In the process of pricing policy formation, an enterprise must take into account the needs and opportunities of consumers of different social strata. It is recommended to establish a separate product price for the consumers with different income level, but in any case the finished goods must be of high quality, regardless of the status of the final consumer. Considering the fact that most of the population of Ukraine belongs to the lowest class of the social stratum (approximately 70% of the country's inhabitants), it is extremely important to find concrete ways of reducing the unit

cost of production. As an example, we can cite the use of more budgetary packaging or advertising. This will allow the enterprise to receive a positive public evaluation and in the long-term period of time this business entity will be able to achieve the effective sales activity.

It is known that a qualitatively organized advertising, organization as a complex of marketing communications, plays an important role in effective sales management. Its mission is to inform and convince customers of the quality of goods and services that are offered by a particular enterprise.

Depending on the final result, experts can identify the economic and psychological effectiveness of advertising. Psychological influence of advertising at the subconscious level of a person is the most effective one, since this kind of advertising can convince potential consumers of the need to purchase a certain product or service. On the contrary, the economic effectiveness of advertising is related to its ability to psychologically influence an individual or a group of people. In order to draw a conclusion about the effectiveness of advertising, it is necessary to determine, first of all, its influence on the volume of goods turnover of the enterprise. As practice shows, it is possible to accurately calculate the economic effectiveness of advertising only if it directly influenced the increase in the sale of goods immediately after its appearance. First of all, it concerns the advertising of goods for daily consumption. For comparison, in the case of purchasing an expensive product with a long service life, the consumer needs to think more carefully about the need to purchase it. Therefore, in this case, the advertising effect has a prolonged effect. This mechanism looks something like this: at first the individual learns from advertising about a particular product, and then he or she studies its main characteristics in more detail and compares them with other similar products, and finally makes a decision about the need to purchase the product at least once.

Thus, it is difficult to accurately calculate the effectiveness of advertising as a marketing tool in the context of the enterprise sales activities, since it can have a delayed effect of the action. In addition, some factors such as changing the purchasing power of the population and expanding distribution channels, which can significantly affect the pace of trade liberalization, should also be taken into account.

It is worth noting that the image advertising usually advertises not an individual product or service, but an enterprise as a whole, so it does not set a goal to get profit immediately. However, this type of advertising affects the activation of the sale of goods. Advertising, therefore, plays an important role in promoting sales, because it significantly expands the sales markets, accelerates the flow of funds and, finally, positively affects the production processes of the enterprise.

Coming to the conclusion, it should be mentioned that marketing activities are considered to be an integral part of an effective activity of any industrial enterprise. Therefore, the methods of its implementation determine the success of the enterprise's activity and determine the future of products that can reach the

final customer or having passed all the stages of production process, remain in the warehouse for months. Proceeding from this, each enterprise must responsibly approach the issue of the formation of a sales department, the rational activity of which can ensure a sustainable profit. An efficiently organized sales system contributes to the profitability of an industrial enterprise and determines its further sustainable social and economic development, as well as the development of a certain industry as a whole.

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# **ELECTRONIC DOCUMENTATION IN THE SYSTEM OF ADMINISTRATIVE ACCOUNTING OF AGRARIAN ENTERPRISES**

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Automated accounting of production costs, as a key area of activity of agricultural enterprises, covers a number of labor-intensive operations, in particular: the grouping of costs according to the chosen method of cost accounting; determination of the planned and actual cost of products (works, services); evaluation of work in progress; the adjustment of the planned cost price to the actual level; formation of correspondence of accounts with its display in the registers of synthetic and analytical accounting; compilation of statistical and financial reporting. The specificity of the automation of the accounting of the production process is that the main information array is data obtained from other accounting sites [7].

In the conditions of automated management of an economic entity and the production process, in particular, electronic document management is related to the formation of an information database of electronic documents for use by its managerial apparatus in the process of realizing its functions.

A significant contribution to the development of theoretical aspects of the essence of electronic documents was made by such scientists as V.S. Tsymbalyuk, V.M. Brizhko, N.Ya. Shvets, I.V. Klimenko, I.M. Nazarenko,

R.A. Kalyuzhnyi and others. Various theoretical, methodical and applied aspects of application of information technologies in the accounting process found their reflection in the scientific works of F.F. Yefimova, M.S. Pushkar, V.Ya. Plaksiienko, S.V. Ivakhnenko, V.D. Shkvir and many other local and foreign scientists.

The problem of organizational and legal support of relations in the sphere of electronic document circulation was considered by such scientists as M.M. Dutov, A.A. Litovchenko, S.A. Pirog, V.V. Nadolskaya, S.I. Semiletova, I.M. Sopilko, I.A. Trubin, A.A. Shelepina and others. However, the theoretical and methodological approaches to electronic documentation in the system of management accounting, taking into account the development tendencies and peculiarities of agricultural

production, still remain insufficiently studied. The specified problems have caused a choice of a theme of our research, as well as the main tasks, structure and directions of its further investigation.

Specifically, the latest PhD theses are good material helping to have a better understanding of research status in the electronic documentation area:

- A.V. Yanchev, in his thesis entitled “Organizational and methodological provisions of electronic documentation in the accounting system” (2015), determined the methodological foundations of accounting as an information subsystem for managing a virtual business education, the basis for the existence of which is a clear consolidation of fixing of economic facts with unified forms of electronic documents and the use of modern information and communication technologies. In addition, the author proposed a conceptual model for the development of accounting, which is based on the technologies of global document circulation. The subject of the above-mentioned model is the environment, while the objects are the population, business, the state and the information society to ensure the development and protection of the domestic information sphere. Scientific recommendations on the electronic documentation of the processes of material support of economic activity, settlement operations with the use of information and communication technologies, electronic labor accounting and payment, electronic document management in the taxation system are improved by author [9].

A.Yu. Kalamayko in his thesis on the “Electronic means of proving in the civil process” (2016) has developed the concept of electronic means of evidence as prescribed by law for the procedural form of bringing carriers of written and audio-visual information in electronic form [6].

The PhD thesis of M.V. Gordiychuk is devoted to the determination of the main issues of “Legal regulation of electronic document management in the field of taxation” (2017). The author justified the position on the unification of all the existing information systems (including customs and tax) in which electronic documents function, to a single All-Ukrainian information system of electronic document management. In addition, the ways to improve the information security of electronic document management in the field of taxation are defined in this thesis; peculiarities of legal regulation of electronic document management in tax legal relations are singled out; and, finally, the necessity of implementation of foreign experience in regulating electronic document circulation in the domestic legislation is argued by the author [1].

Nowadays the activation of integration management processes in the domestic practice raises the importance of reliable accounting information. At the same time, there is a need to adapt the national management accounting system to the requirements of international practice, which contributes to increasing the transparency and clarity of information for foreign investors. This, above all, refers to electronic documentation as one of the elements of accounting, which ensures the effective functioning of any enterprise. The current regulatory regulation of

electronic documentation is shown in Table. 1.

Table 1

### Normative regulation of electronic documentation

Normative document	Type of content of the normative document
Law of Ukraine "About information" [4]	<p>The Law specifies that any document is a material carrier containing information which basic functions is its preserving and transmission in time and space. This Law regulates legal relations in a number of issues, among which are as follows:</p> <ul style="list-style-type: none"> <li>- basic principles of information relations;</li> <li>- subject and object of information relation;</li> <li>- right to information and guarantees of the right to information;</li> <li>- protection of the right to information;</li> <li>- responsibility for violation of the legislation of Ukraine of information (disciplinary, civil law, administrative or criminal).</li> </ul>
The Law of Ukraine "On electronic documents and electronic document management" [2]	<p>This Law regulates the basic organizational and legal foundations of electronic document management and the use of electronic documents. The following terms are defined:</p> <ul style="list-style-type: none"> <li>- the electronic document is the document in which information is fixed in the form of electronic data, including obligatory details of the document;</li> <li>- electronic document management is a set of processes for creating, processing, transferring, receiving, storing, using and withdrawing electronic documents that are executed by using integrity checking and, if necessary, confirming the receipt of such documents.</li> </ul> <p>The Law regulates legal relations in matters of: electronic signature; electronic digital signature; legal status of the electronic document and its copy; circulation of electronic documents; checking the integrity of the electronic document; the procedure for storing and archiving electronic documents; organization of electronic document circulation; rights and responsibilities of subjects of electronic document circulation; resolution of disputes between subjects of electronic document circulation; responsibility for violation of the legislation on electronic documents and electronic document management.</p>
The Law of Ukraine "On electronic digital signature" [3]	<p>This Law regulates the legal status of an electronic digital signature and regulates the relations arising from its use. The following terms are defined:</p> <ul style="list-style-type: none"> <li>- the electronic signature – is defined as data in electronic form which are added to other electronic data or are logically connected with them and are determined for identification of the signer of these data;</li> <li>- the electronic digital signature is a type of electronic signature, obtained in the result of cryptographic transformation of the electronic data set which is added to this set or logically connected to it and enables to confirm integrity and identify the signer.</li> </ul> <p>The Law regulates legal relations in such matters as: the procedure for imposing and applying an electronic digital signature; legal relations of subjects in the sphere of electronic digital signature services; rights and obligations of the subscriber; the key certification center; responsibility for violation of the legislation on electronic digital signature; recognition of foreign certificates and keys, etc.</p>

The above characteristic of the regulatory and legal framework that regulates information relations in the state and ensures the implementation of the state policy in matters of document circulation and records management, also allows to formulate a systematic theoretical basis for the study of electronic documentation of the process of production of the agrarian enterprises [8].

Electronic documentation of the process of production and the process of performance of works and services provides the collection and processing of information necessary to optimize cost management.

The main principles of management accounting in the conditions of automated accounting systems are:

- accumulation and reusable use of credentials;
- grouping of expenses according to the methods of accounting for costs and calculating the cost of production (works, services);
- one synthetic account – many analytical accounts;
- realization of calculation of the cost price of productions (works or services);
- adjustment of the planned cost price of products, works and services to the level of their actual cost price;
- automatic generation of all accounting registers and reporting forms based on data reflected in the system of accounts.

Methodological approaches to the electronic documentation of the production process allow the development of a model of accounting procedures for the automated processing of information on the costs of production and the cost of production (works, services) of the agrarian enterprises (Table 2).

Accounting procedures for automated processing of information on the process of production of agricultural enterprises are carried out in the following order:

- at the first level (automated workstation of accountant of the I level) – collection and registration of primary information on the costs of production and output (performance of work, provision of services), the formation of an electronic database that takes into account regulatory requirements for accounting in Ukraine);
- at the second level (automated workstation of accountant of the II level) – processing and analysis by the accounting department of the enterprise of information on the costs of production and output of products (works, services), which was formed by specialists of the first level of the automated workstation of accountant; the formation of a local database with processed information to transfer it to a higher level of management
- at the second level (automated workstation of accountant of the III level) – analysis of accounting information on the costs of production and output of products (performance of work, provision of services) obtained from the lower levels and the adoption on its basis of sound management decisions.



Table 2

**Model of accounting procedures for automated processing of  
information on the production process in the agrarian enterprises**

Structural divisions of the enterprise	Accounting procedures of automated information processing
Automated workstation of accountant of the first level	
Specific places of information creation at the enterprise	Collection and registration of primary information on the costs of production (material costs, labor costs, single social payments, amortization and other expenses).
	Collection and registration of primary information on the output of products (main, accompanying products and secondary products).
	Regulatory framework for accounting for production and output costs
	Displaying source information
Automated workstation of accountant of the second level	
Accounting department of the enterprise	Receiving data on the costs of production and output of products from the automated workstation of accountant of the first level, their verification, processing and formation
	Automated control, analysis and modeling of accounting information about the production process
Automated workstation of accountant of the third level	
The highest level of management Chief accountant, the Head of the enterprise)	Control and analysis of financial and economic activities of the enterprise
	Regulatory framework for accounting for production costs
	Formation of reporting on the production process
	Formation and transfer of information to other automated workstations of the enterprise information system
	Modeling the accounting process for making managerial decisions

Thus, the introduction of the proposed model in the practical activities of the accounting service of the agrarian enterprises will allow to automate the workplaces of accounting personnel, significantly increasing their productivity in the accounting area of the production process.

The effectiveness of management of the process of production of the agrarian enterprises in modern conditions depends to a large extent on the solution of the problems of the operational formation of electronic documents, as well as the control over their compilation and organization of storage. At the same time, electronic documents circulation not only significantly improves the quality of the work of the executors, but also reduces the time of collection, processing and submission of operational information for making correct management decisions.

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## **ANALYSIS OF THE CONDITIONS FOR THE LEADERSHIP FORMATION AT THE CURRENT STAGE OF BUSINESS DEVELOPMENT IN MONGOLIA**

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For successful functioning and development of business in the country, it is necessary to have leadership and an effective management system. The role of leadership has a significant basis - it is the leaders who give meaning to the activities of employees, set more goals, while inspiring their employees to achieve

them, stimulate business processes, lead the company to prosperity and sustainable functioning.

Until 2009 GDP indicators reflected the positive dynamics of the country's economic development. In industry, in the beginning of 2008 real growth in production was achieved by 14.5%, which provoked an increase in GDP per capita by 48% and by 32% of real GDP in comparison with 2007 (Fig. 1). The reasons were the following: an increase in the production of non-ferrous metals due to the successful performance of the Mongolian-Russian joint venture 'Erdenet' and favorable weather conditions, which did not cause a massive fall in livestock.

But an increase of 62% in wages to employees in the budgetary sphere in 2007, a fall in world energy prices led to a decrease in the cost of imports of petroleum products, machinery and the private sector in Mongolia, to increased domestic prices for imported food (wheat, rice, fruits and vegetables), to an increase in the trade balance deficit and an increase in inflation (26.8%) in 2008 (Fig. 2.2).



Fig.1. GDP dynamics trend in Mongolia

These economic factors caused a sharp drop in Mongolia's GDP in 2009 by 19% compared to 2008 (Fig. 1), an increase in the unemployment rate by 2.4% (Fig. 2), a 25% drop in exports of goods and services, 30.2% drop in import (Fig. 3).

In 2010-2011 there was a sharp positive development of Mongolia's economy. GDP grew by 48%, inflation and unemployment dropped to 7.7%, while exports of goods increased by 35% (Fig. 1-3).

Since 2012 Mongolia's economic development has been characterized by a constant decline in its growth rates until 2017. The crisis of the world economy since 2012 has provoked a decline in demand and in prices for Mongolian raw

materials such as coal, copper, oil, etc., which in turn led to a sharp decline in companies' profits, employment and state budget revenues. So, in 2012-2016 the decline in GDP was 5%, the decline in exports of goods was 15% (Fig. 1, 2).

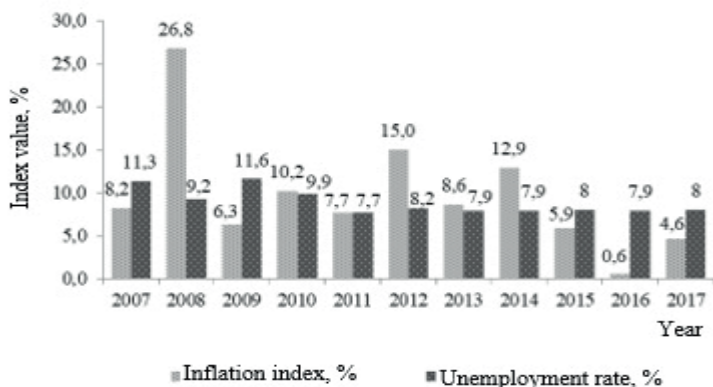


Fig. 2. Dynamics of inflation index and unemployment in Mongolia

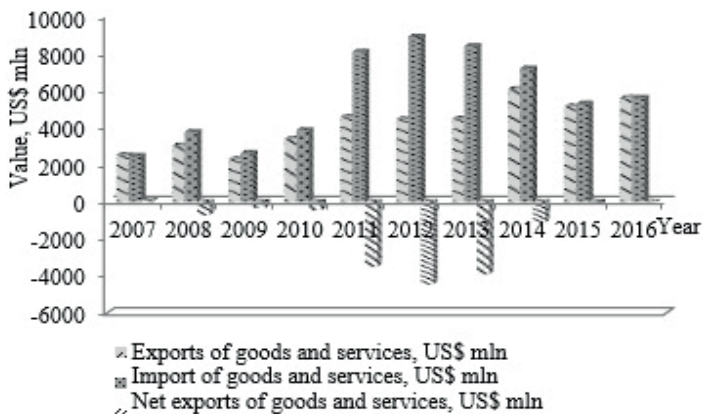


Fig. 3. The trend of Mongolia's export-import position

These conditions provoke the need for leadership growth in Mongolia's business sphere as a necessary condition for ensuring sustainable development of economic entities.

It should be noted that the economic conditions of doing business in Mongolia over the past decade remained almost unchanged. According to the World Bank estimates, as of 2017, Mongolia ranked 62nd out of 190 countries according to

the World Ranking of the Ease of Doing Business Index. This indicator changed significantly during the period under review only in 2007 (rated 45 place). Other years were characterized only by a decrease in the position in the ranking (Fig. 4). In 2007-2017 Mongolia lost its positions by 17 points, which indicates a deterioration of the business environment for setting up and functioning of enterprises. The current situation is the result of a rise in the price of electricity in the country and a bureaucratic approach to the implementation of contracts' provision.

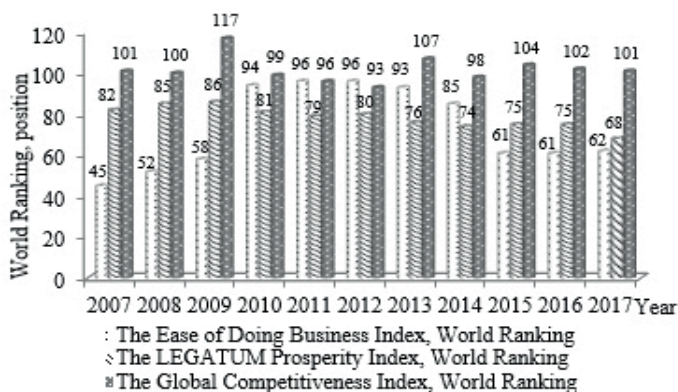


Fig. 4. Mongolia's world ranking on business conditions

The development of leadership in the business environment is also influenced by the achievements of the country in terms of prosperity and well-being. According to the World Prosperity Index, Mongolia lost its position by 14 points in 2007-2017 (Fig. 4). The reasons of this decline in Mongolia's position are the following: deterioration of environment quality, national and personal security of citizens, personal freedom and social tolerance.

According to the level of competitiveness of Mongolia's economy, according to the International Economic Forum's assessment, there is also no significant change in the situation for the better. In 2007-2017 the country did not change its position in the international rating and ranks 101st in terms of competitiveness. The country improved its positions by 16 points in comparison to 2009, but lost it by 8 points in comparison to 1012. Destructive factors of the competitiveness of Mongolia's economy are:

- high level of corruption in the national economic system;
  - high level of bureaucracy and ineffectiveness of public administration;
  - insufficient level of education and qualification of the workforce;
  - high level of tax rates;
- lack of motivation for innovative development;  
poor work ethics in work teams, etc.

Mongolia refers to countries with a predominantly non-free economy, that is, moderately unfree. According to the World Ranking, Mongolia significantly deteriorated its position from 62 place in 2007 to 128 place in 2017 (Fig. 5). Thus, it changed the status of a country with a moderately free economy (60.3 points) to the status of a country with a moderately unfree economy (54.8 points).

The current situation is provoked by the development of corruption schemes in the country and the strong pressure of the political system on the judiciary, as well as the country's low level of openness to foreign capital.

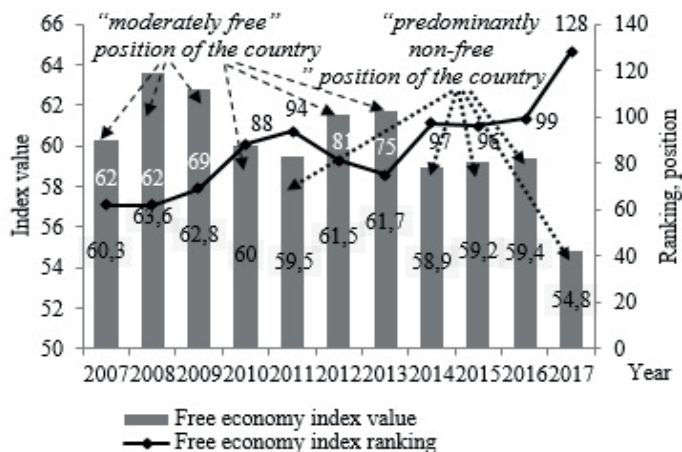


Fig. 5. Mongolia's international position in the index ranking of economic freedom

Also, the level of competition in the business sphere influences the competence of leadership. In this connection, within the framework of the research, the level of intersectoral competition was assessed with the help of the method of hierarchy of T. Saati and K. Cairns.

By a method of expert assessments, which were made by civil servants, entrepreneurs, researchers, a pairwise comparison of competitiveness in the context of all sectors of the Mongolian economy was carried out using the matrix method [1; 2].

The system of economic indicators of the assessment of intersectoral and intra-industry competition consists of:

- level of financial resources;
- use of innovative technologies;
- availability and security of highly skilled labor resources;
- flexibility in pricing policy;
- availability of an established market;
- the possibility of bank lending and reliable credit history;

- effective use of advertising means and other means of promoting goods, work, services;

- solvency of the target consumer sector.

The index of consistency as a result of the establishment of competition assessments, based on the opinions of experts, does not go beyond the limits of the interval [0; 20]. In this case, the limit of the index value, equal to 0, shows the best result (Table 1). The average score was determined by the priority vector ( $X_i$ ,  $0 \leq X_i < 1$ ).

On the basis of the data in the table, the following conclusions can be drawn. The industry has the highest level of financial resource provision - 0.238, besides, the level of competitiveness is maintained by the high level of solvency of the target consumer sector - 0.176 and the established market - 184. However, the destructive factor of the industry competitiveness is the flexibility of pricing policy and the availability of credit funds (0.040 and 0.058, respectively).

Also, agriculture - 0,086 - is one of the lowest values of obtaining credit banking funds according to the analysis results. The consumer sector also contributes to the increase of competitiveness - 0.173, while the decrease is due to low level of use of advertising means - 0.068.

In comparison with other industries, construction has the highest index, as to the possibility of bank lending (0.259). With setting up a regional logistics center for all types of transport which connect the major markets of Russia and China, it is planned to increase the volume of transportation in the country by joining the common network of air, road and rail transport of Northeast Asia, which occupies strong positions in the world economy.

Communications and telecommunications in Mongolia are characterized by a high level of market performance of their products - 0.246 and solvency of the consumer sector - 0.181. But meanwhile this industry is characterized by a significant shortage of qualified personnel (0.031) and an inflexible pricing policy (0.035).

It should be noted that of all the studied sectors of Mongolia's economy, the commerce sector has a high degree of competitiveness in terms of price maneuverability (0.194), the availability of an established market (0.167), and the solvency of major customers (.162). However, in this area, insufficiently developed high technologies are used (0.031). The service sector has the highest competitiveness in terms of skilled workers (0.190), the availability of the distribution network and the sales market (0.205), and the solvency of key customers (0.225).

On the basis of the assessment results, the following hierarchy of inter-sectoral competitiveness in Mongolia can be justified. Service sector has the highest level of competitiveness. This is due to the preference of entrepreneurs to work in industries where short-term benefits can be obtained. Commerce is on the second place, communication and information industry is on the third place, transportation is on the fourth place. Construction industry has the lowest level of competitiveness.

Table 1

**Results of the assessment of inter-sectoral competition in Mongolia**

Economic indicator	Branch of the economy						
	Agriculture	Industry	Branch of the economy Construction	Transportation	Communication and information	Commerce	Service sector
level of financial resources	0,112	0,238	0,129	0,112	0,123	0,120	0,158
availability and security of highly skilled labor resources	0,149	0,104	0,077	0,057	0,031	0,038	0,190
use of innovative technologies	0,095	0,129	0,119	0,067	0,117	0,031	0,124
flexibility in pricing policy	0,106	0,040	0,039	0,047	0,035	0,194	0,135
availability of an established market	0,159	0,184	0,100	0,181	0,246	0,167	0,205
the possibility of bank lending and reliable credit history	0,086	0,058	0,259	0,211	0,126	0,153	0,098
the possibility of bank lending and reliable credit history	0,068	0,069	0,122	0,081	0,141	0,135	0,084
solvency of the target consumer sector	0,173	0,176	0,155	0,244	0,181	0,162	0,225

Yet it should be noted that competitiveness has a very dynamic nature and only industries that are characterized by an innovative approach to non-ordinary policies are, as a rule, most successful.

Thus, it can be concluded that leadership in organizations at the current stage of business development in Mongolia is formed under the following conditions:

- a steady decline in economic development;
- deterioration of the conditions for the efficiency of business, mainly because of bureaucratic principles of public administration and the development of corruption schemes;
- decrease in the level of competitiveness of the national economy;
- the most competitive sectors of the economy are commerce and service sector.
- These factors lead to certain leadership models in organizations which will be



considered and determined in the study, with the aim of determining the optimal leadership styles under the current conditions of economic development.

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## **PART 4. THE LEGAL, SOCIOCULTURAL AND EDUCATIONAL ASPECTS OF SOCIETY MANAGEMENT**

### **METHODOLOGICAL ASPECTS OF ASSESSMENT OF RESEARCH UNIVERSITIES COMPETITIVENESS**

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The beginning of the XXI century has necessitated the preparation of highly skilled, competitive specialists capable of solving complex problems of the growth of the domestic economy, for the high-tech and innovative development of the country. Having identified the course for integration into the educational and scientific space of Europe, Ukraine is modernizing the educational sector in the context of European requirements, working hard on implementing the provisions of the Bologna Process. In accordance with the ratified Association Agreement between Ukraine and the EU, a strategy for implementing cooperation in the field of science and education, training and youth policy is being developed. This requires the reform of higher education, updating its content and operational components, focusing on improving the quality of training of future professionals.

Increasing the competitiveness of research universities, modernizing and reforming higher education systems are important tasks on the path to innovative European development of Ukrainian society in the context of formation of an educated young generation, which determines the relevance of the topic of the selected research.

Analysis of recent researches and publications. The problem of managing the competitiveness of higher education institutions (HEI) was carried out by many domestic and foreign scientists, in particular Verkhogliadova N. [11], Kravchenko K.V., Paschenko N.I. and Prus L.R. [9]. The authors state that the competitiveness of the higher education institution is mostly comparative dynamic ability in terms of price, quality and assortment to satisfy existing ones and shape future needs of customers in a definite market at a certain period of time, while ensuring social

orientation and own sustainable development. Fatkhutdinov R.A. [3] is convinced that the competitiveness of the HEI is defined as the ability:

- 1) to prepare specialists who can withstand a competitive struggle on a specific external or internal labor market;
- 2) to develop competitive innovations in this field;
- 3) to have an effective reproductive policy in all spheres of their activity.

A significant contribution to the research of the problems of research universities management was made by Altbakh F., Antoniuk L. [1], Burtseva K. [2], Federkeil G. [4], Ilnitsky D. [6], Kincharova A. [7], Kolotylo M., Kurbatov S. [8], Mayer G., Salmy D., Satsyk V., Supian V., Tulchynska S. Sytnytski M. [10], Zgurovskiy M., Zhylynska O. [12].

Despite considerable theoretical and practical achievements of scientists in the field of competitive research universities, the problem of competitiveness assessment of research universities is not fully disclosed, therefore it is relevant now.

The aim of the study is to analyze the existing foreign and domestic methods of assessing the competitiveness of research universities (RU) based on ranking and development of a comprehensive approach to the definition of an appropriate integrated assessment based on the use of multi-criterion analysis tools and in particular hierarchy analysis methods and TOPSIS.

Presentation of the main research material. One of the important elements of the competitiveness management of research universities is actually evaluating its competitive advantages, which enables identifying its weaknesses and strengths and formulating a list of measures aimed at improving its competitive position. The most common tools for the competitiveness assessment of research universities belong to ranking assessment that serves many purposes, in particular:

- to promote the educational sphere modernization and flexibility through feedback (in the form of surveys) with the main participants (students, teachers) of the educational process;
- to stimulate competition between different types of educational institutions, curricula and disciplines classifying them;
- to provide potential consumers (entrant, employer, state structures) with adequate comparative information on the status of higher education institutions timely;
- to ensure the rights of the young person to employment by improving the quality of education.

The authors have developed a comprehensive approach to the definition of an integrated assessment of the competitiveness of research universities based on the use of multi-criteria analysis tools in order to eliminate the problem of possible compensatory effects in the additive «weighting» of evaluations according to various criteria and increasing the objectivity and reliability of the results (Figure 1).

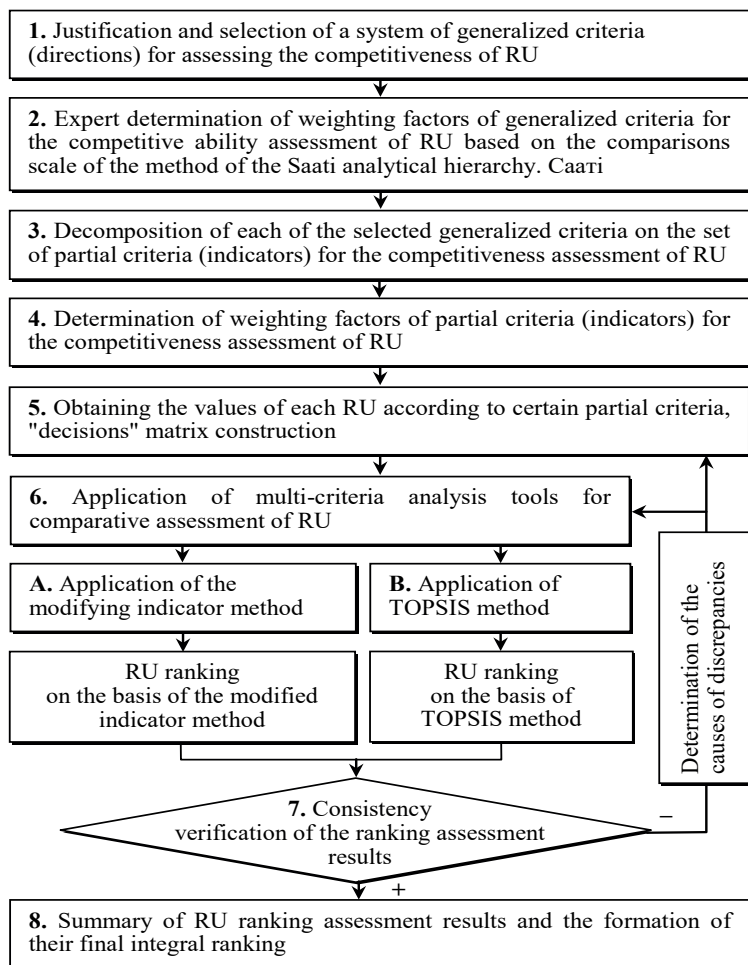


Fig. 1. Algorithm of multi-criteria evaluation of research universities competitiveness\*  
*\* developed by the authors*

Particular attention in the methodology is given to the identification of generalized criteria for the competitiveness assessment of research universities (Table 1).

Table 1

**System of generalized criteria and partial criteria (indicators)  
for assessing the research universities competitiveness \***

<b>1. Educational activities</b>	1.1. Average level of entrants (EIE average score)
	1.2. Employment percentage of higher educational institutions' graduates in corresponding majors and professions
	1.3. Relevance of educational programs to the needs of the education and labor market
	1.4. Availability of teacher training programs
	1.5. Participation of students in competitions, Olympiads, conferences
	1.6. Quality of teaching (assessment of graduates of research universities)
	1.7. Quality of education (assessment of employers)
	1.8. University reputation in terms of quality of teaching (survey of representatives of academic community)
	1.9. Ratio between students and professors
<b>2. Scientific and innovative activities</b>	2.1. Availability of material and technical base
	2.2. Ability of research universities to develop and introduce innovations
	2.3. Presence of an incubator, a science park on the territory of research universities
	2.4. The share of research and innovation work in educational curricula
	2.5. Number of patents and copyrights received per year
	2.6. Level of co-operation with business in creating innovative products and services
	2.7. Level of access to the educational process of modern scientific knowledge, pedagogical technologies and means of training
	2.8. Citation in Scopus and Web of Science
	2.9. Level of involvement of teachers and students in research activities
<b>3. International activities</b>	3.1. Participation in realization of international projects and programs, in scientific and practical conferences, seminars and exhibitions
	3.2. Presence of research universities in international rankings
	3.3. Participation in international educational programs and projects
	3.4. Collaboration with authoritative international educational and scientific institutions
	3.5. Academic motivation of teachers and students
	3.6. The share of university employees having an honorary degree conferred by a foreign-funded educational institution
	3.7. Number of prize places at international competitions
	3.8. Creation of scientific centers with foreign partners
	3.9. The ratio of the share of foreign students to the proportion of students from the country where the university is located

4. Management activities	4.1. Flexibility of organizational management system ▽
	4.2. Establishment of relations with public administration and business
	4.3. Professionalism level of senior management
	4.4. Organizational culture (traditions, customs and RU branding)
	4.5. Organizational climate
	4.6. Presence of international research exchange at the research university
	4.7. Availability of managerial innovations
	4.8. Availability of information management system
	4.9 Availability of research university development strategy

*\* developed by the authors*

The most labor-intensive and responsible stage of the competitiveness assessment of research universities is the construction of «decisions» matrix, that is obtaining information about the significance of each research university according to certain partial criteria (indicators). Now let us denote  $x_i^k$  – the value of the competitiveness level of  $i$ -research university according to  $k$ -indicator of  $j$ -generalized criterion ( $i = 1, 2, \dots, m$  (– number of research universities),  $j = 1, 2, \dots, N$  ( $N = 4$  – number of generalized criteria)).

A. The following transformations for modified indicator method are used in order to normalize the «decisions» matrix:

$$y_{ji}^k = x_{ji}^k / \max_p x_{jp}^k$$

– for indicators

which have a monotonously increasing target function;

$$y_{ji}^k = x_{ji}^k / \max_p x_{jp}^k$$

– for indicators with a monotonously decreasing target function. Let us denote  $(y_j^k)^* = \max_i y_{ji}^k$ , that is according to the concept of benchmarking for each indicator, the best values among the existing universities-competitors are considered. Then, the competitiveness level according to each generalized criterion (direction) of  $i$ -research university is calculated using the formula:

$$CE_i = \frac{\sum_k \alpha_1^k \cdot y_{1i}^k}{\sum_k \alpha_1^k \cdot (y_1^k)^*} \quad CS_i = \frac{\sum_k \alpha_2^k \cdot y_{2i}^k}{\sum_k \alpha_2^k \cdot (y_2^k)^*}$$

$$CI_i = \frac{\sum_k \alpha_3^k \cdot y_{3i}^k}{\sum_k \alpha_3^k \cdot (y_3^k)^*} \quad CM_i = \frac{\sum_k \alpha_4^k \cdot y_{4i}^k}{\sum_k \alpha_4^k \cdot (y_4^k)^*}$$

Let us introduce the following markings  $CE^* = \max_i CE_i$  ;  
 $CS^* = \max_i CS_i$  ;  $CI^* = \max_i CI_i$  ;  $CM^* = \max_i CM_i$  .

Then, the integral value of competitiveness of research university is found using the following formula:

$$CA_i = \frac{w_E CE_i + w_S CS_i + w_I CI_i + w_M CM_i}{w_E CE^* + w_S CS^* + w_I CI^* + w_M CM^*}$$

B. When applying TOPSIS method (Technique for Order Preference by Similarity to Ideal Solution) [5] the «decisions» matrix is normalized as follows:

$$y_{ji}^k = x_{ji}^k / \sqrt{\sum_{p=1}^m (x_{jp}^k)^2}$$

The next step is «weighting» of the normalized matrix defined in the previous step using the following formula  $u_{ji}^k = \alpha_j^k \cdot y_{ji}^k$

Further calculations will be performed according to the following scheme. At the 1st stage the competitiveness levels of research universities are determined according to generalized criteria. To do this, first, for each partial criterion (indicator), the «best» (the «ideally positive solution – IPS») and the «worst» (the «ideally negative solution – INS») values are found taking into account the nature of the monotony of the target functions.

$$(u_j^k)^+ = \max_i u_{ji}^k \quad (u_j^k)^- = \min_i u_{ji}^k, \text{ if } k -$$

Let us denote  $j$  - indicator of  $j$  - generalized criterion has steadily growing objective function. Let,

$$(u_j^k)^+ = \min_i u_{ji}^k \quad \text{in the case of a monotonously decreasing target function for}$$

$k$  – the indicator of  $j$  - generalized criterion.

The next step is to calculate the degree of proximity. So, the distance between -alternative and IPS is calculated by the formula

$$S_{ji}^+ = \sqrt{\sum_k (u_{ji}^k - (u_j^k)^+)^2}$$

$$S_{ji}^- = \sqrt{\sum_k (u_{ji}^k - (u_j^k)^-)^2}$$

Similarly, distance to INS:  $S_{ji}^-$  . Relative proximity of  $i$  - alternative to the ideal according to  $j$  - generalized criterion is interpreted as the level of its competitiveness due to this criterion and is determined

$$C_{ji} = \frac{S_{ji}^-}{S_{ji}^- + S_{ji}^+}$$

by the formula

At the 2nd stage, using analogous procedures the integral levels of the RU competitiveness are determined taking into account all the generalized criteria.

For this, since the «decisions» matrix  $\|C_{ij}\|$  is dimensionless, we «weigh» it

with the weighting coefficients  $w_E = w_1$  ,  $w_S = w_2$  ,  $w_I = w_3$  ,

$w_M = w_4$  obtained above using the formula:  $p_{ji} = w_j c_{ji}$  .

Then, on the basis of the following marks  $p_j^+ = \max_i p_{ji}$  and

$p_j^- = \min_i p_{ji}$  ,  $D_i^+ = \sqrt{\sum_j (p_{ji} - p_j^+)^2}$  and  
«distances»

$D_i^- = \sqrt{\sum_j (p_{ji} - p_j^-)^2}$  are calculated, and on their basis the relative

$$R_i = \frac{D_i^-}{D_i^- + D_i^+}$$

«distance» is calculated, which defines the integral levels of research universities competitiveness.

**Conclusions.** The conducted analysis of existing foreign and domestic methods of research universities rankings have enabled to highlight generalized criteria and indicators for assessing the higher education institutions competitiveness, which became the basis for developing a comprehensive approach to the definition of relevant integral assessments of research universities based on the use of multi-criteria analysis tools, in particular hierarchy analysis methods and TOPSIS.

Prospects for further research in this field are:

- full criteria system formation when assessing higher education institutions and reception of appropriate reliable assessments;
- application of modern tools of multi-criteria assessment taking into account opportunities receiving inaccurate estimates for construction of research university rankings;
- simulation in order to study sensitivity of received rankings depending on



weighting factors changes of criteria evaluation and their indicators.

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# **EXAMINATION OF DIGITAL PHONOGRAMS AND DIGITAL RECORDING EQUIPMENT: TECHNOLOGICAL ERRORS OF EQUIPMENT MANUFACTURING AND THEIR USE**

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Wide application of digital technology and, in particular, digital recording of sound and images in all fields of human activity has resulted in the creation of examination tools to verify the authenticity of the materials of digital recording. Examination tools include expert software products and the methodology for conducting impact assessments. Difference of mathematical models describing the processes, which occur during recording sound and images, leads to separation of recording digital phonograms and digital images. In this article, we consider the modelling principles of examination tools for authentication of digital sound tracks and identification of digital recording equipment.

Scientists and specialists from different countries such as the United States, France, Britain, Russia, Brazil, Poland, Romania, and Spain deal with the development of examination tools of digital sound tracks. Diagnostic task of processing traces in digital sound tracks is solved by the methods of allocation of regular spectral components from the recorded signals and continuity of their phase [1–14]. However, in most proposed methods there are spectral components generated through electromagnetic network pickups for recording equipment. Nevertheless, in modern digital recording equipment, levels of such pickups in recordable digital signals are very small, and short-term (windowed) Fourier transform is used for their allocation. In fact, the expertise of these countries used one of the methods (that was created in the 70s in the USSR) to verify the authenticity of information in analog sound tracks, not taking into account the specificities of digital recording of signals [10].

Therefore, having read the works published by our international colleagues, we decided that we should provide them with theoretical and practical results of our work of last 12-15 years. In fact, in this field we have created a new direction of constructing examination tools of digital sound tracks. We believe that this will be done in the form of a series of articles, which are consistently showing the theoretical and experimental background of creating practical software products and techniques for authentication of digital sound tracks and identification of digital recording equipment, embedded in the practices of expert institutions of Ukraine.

The purpose of this article is to show some theoretical considerations underlying our developed experimental examination tools.

The possibility of applying stray parameters of digital recording equipment for revealing traces of digital processing in digital sound track. As any technology, digital recording equipment is designed and manufactured in control of its components. Therefore, digital recording equipment has its stray parameters. To apply these parameters for examination, it was necessary to consider different variations of constructing digital recording equipment, to find general nodes and blocks for all types of digital recording equipment and to define stray parameters of these nodes and blocks. You should choose those parameters, influence of which on the signals creates identification signs, possessing persistent properties of individuality, repeatability and physical extraction of digital sound tracks from signals and/or intrinsic noises, in which they must be fixed [10].

Analysis of different kinds of constructions of digital recording equipment showed that sampling frequency generators are always applied in all types, analog-to-digital and digital-to-analog converters (ADCs and DACs, respectively). In addition, codecs of channel code and ECC codecs of various types, providing record digital information on mobile carrier are used in digital magnetic recording equipment and instrument recording on optical discs. Moreover, data compression codecs are applied in digital recording equipment with the recording on immobile carrier. The number of kinds and types of codecs is large enough, so it is no sense to consider them from the point of view of the use of stray parameters as identification signs. However, in the future it should be noted that under integral assessment of any parameters of noise, their development can be used in identification.

Thus, regardless of the type of carrier (mobile or stationary), ADCs and DACs and sampling frequency generators are always used in any type of digital recording equipment. So, stray parameters of these nodes and blocks were considered. At the beginning we studied structural features and stray parameters of different types of ADCs and then we found that level quantizer was used in any of them. This node represents the interest from the point of view of identification signs. So let's look at it in more detail.

Level quantizer represents R-2R resistive matrix. It is intended to establish the weight of each bit of ADC (the principle of analog-to-digital conversion is not considered in this work, but it should be noted that this process consists of

two operations – analog signal sampling temporally and quantization of obtained samples by the level). The transfer characteristic of level quantizer is determined by its static characteristic, more generally shown in Figure 1.

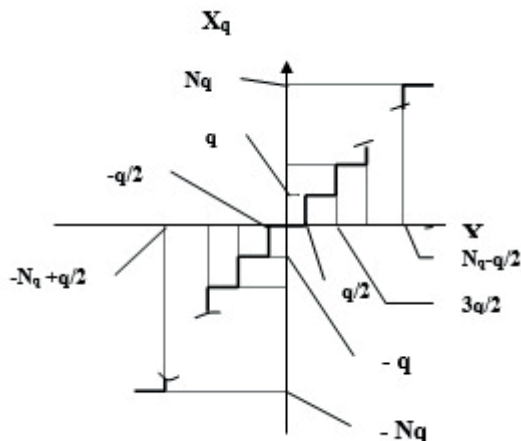


Fig. 1. Static characteristic of quantizer by level

Total error of ADC is defined as

$$\overline{\delta_{\text{ADM}}^2} = \overline{\delta_0^2} + \overline{\delta_{\text{lin}}^2} + \overline{\delta_q^2}$$

where

$$\overline{\delta_0^2} = \frac{\Delta_0^2}{U_{\text{on}}^2} \quad \text{– mean square of dynamic error of ADC;}$$

$$\overline{\delta_q^2} = \frac{q^2}{12} \quad \text{– dispersion of quantization error by level}$$

(for a uniformly distributed random quantity),

where

$U_{\text{on}}$  – value of reference voltage of ADC [10; 11].

examination during conducting identification research of digital recording equipment and checking the originality and integrity of digital sound tracks.

We are not interested in dynamic error for two reasons:

- Firstly, in ADC, using sample and hold circuit, this error is virtually non-existent (namely, such ADCs are used in digital recording equipment);
- Secondly, it is impossible to determine it in the examined sound track because of unknown original form of the input signal to convert it.

Variance of quantization error by level is not interesting for an expert, because it is determined only by level of least significant bit (LSB) and make fluctuations of this level relative to the zero value of the signal.

However, the static error of ADCs and DACs, which includes the inaccuracy of technological manufacture of individual nodes, in particular level quantizer, is of interest for its use in expert investigations.

Therefore, this error should be considered in detail. Defects of manufacturing level quantizer are important among the errors of static characteristic of ADC [6; 9; 14], which can be potentially used in the examination, they are:

- differential nonlinearity (DNL)  $\delta Id$ , the deviation between two analog values corresponding to adjacent input digital values. It is an important specification for measuring error in DAC; the accuracy of DAC is mainly determined by this specification. Ideally, any two adjacent digital codes correspond to output analog voltages that are exactly one LSB apart. Differential non-linearity greater than  $\pm 1$  LSB may lead to a non-monotonic transfer function in DAC.

- non-monotonic form of static characteristic  $\delta nm$ , – the deviation of increment signs of the response and the impact on at least one of its sections (see Fig. 2).

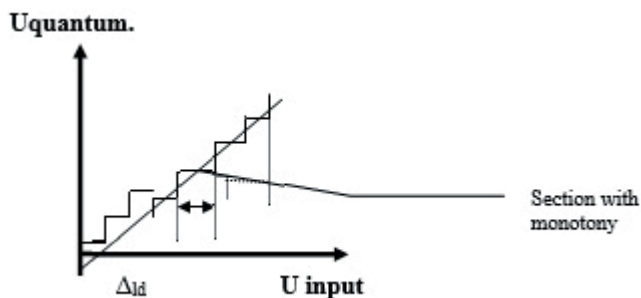


Fig. 2. Differential non-linearity and non-monotonous section of static characteristic of quantization

Certainly, that all these technological defects will be revealed only in the output signals. Therefore, you should consider the system of analog-to-digital conversion as a serious circuit of ADCs and DACs. To consider the circuitry of ADCs and DACs makes no sense, because they are considered in detail in many works, such as in the works [10; 11]. Note, however, that digital recording equipment usually uses ADC of bitwise balancing, while sampling of the original analog signal is used by the sample and hold circuit.

Considering the model of signal passage through the system of analog-to-digital conversion, we note that digital input signals of DAC enter in accordance with the input digital word in the parallel code with a frequency, equal to the sampling rate.

Stepwise analog signal is formed on its output, and it is equal to the sum of the «weights» of all bits of the input code. You can write analog output signal of DAC analytically [13] as

You can write analog output signal of DAC analytically [21] as

$$U = \sum_{i=0}^{n-1} a_i 2^i U_{on}$$

where

$U$  – analog value, the result of conversion;

$U_{on}$  – reference voltage indicating least significant bit (LSB);

$a_i$  – weighting factors determined by bits of the binary code.

Thus, the instantaneous value of output signal of each sample of DAC is the sum of bits «weight» of the input code, in proportion to that R-2R matrix divides the value of the reference voltage.

Therefore, if analog input signal  $x(t)$  is supplied to the input of digital recording equipment, level quantizer of which has differential nonlinearity or non-monotonic form of static characteristic, the output signal  $y(t)$  (with the assumption that the digital recording equipment transmits digital signals without loss) can be written as

$$y(t) = y_1(t) + y_2(t) = \sum_{i=0}^k 2^i U_{on} + \sum_{i=k+1}^{n-1} a_i 2^i U_{on} = a_{k+1} 2^{k+1} U_{on} + \sum_{i=0}^k 2^i U_{on} + \sum_{i=k+2}^{n-1} a_i 2^i U_{on}$$

where

$y_1(t)$  – analog signal before the appearance of non-monotonic form of static characteristic,

$y_2(t)$  – analog signal after the appearance of non-monotonic form of static characteristic,

$k$  – quantization level, until which non-monotonic form of static characteristic is missing,

$k+1$  – following  $k$  quantization level with non-monotonic form of static characteristic,

$k+2$  – quantization level following the level, on which there is non-monotonic form of static characteristic.

Thus, the instantaneous value of output signal of each sample of DAC is the sum of bits «weight» of the input code, in proportion to that R-2R matrix divides the value of the reference voltage.

Provision 1. The probability of coincidence of sampling frequency devices involved in the digital processing of sound tracks is negligible.

Provision 2. The probability of coincidence of quantization levels with technological defects of quantizer devices involved in the digital processing of

sound tracks is negligible.

Provision 3. External interposition and modification of the information contained in digital sound tracks are possible when using at least two different digital devices.

Provision 4. Traces of digital processing of the sound track are revealed as form distortions and, therefore, spectrum of analog signals received on the analog output of equipment when record playing back of analog signals of the sound track, processed in digital form.

### **Conclusions.**

1. The analysis of technological inaccuracies of manufacturing nodes and blocks (stray parameters) of digital recording equipment, in particular ADC and DACs-level quantizers, showed their influence on the appearance of identification signs in intrinsic noises of recording equipment that have individual character.

2. It is shown that such identification signs can be used for identification and diagnostic expert investigations of digital recording equipment and digital sound tracks.

3. It is proved that the use of stray parameters of the recording equipment is a new direction of creating the examination tools. It is proposed to develop examination tools based on this direction. Methods of constructing such tools will be considered in the subsequent articles.

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## **INNOVATIONS AS DOMINANS OF DEVELOPMENT OF EDUCATION**

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The rapid development of innovative technologies is the cause of educational reforms that require investment support to transform education into a productive sector of service economics. Ensuring a reliable interaction between education and science with the interests of man, state and business should be put to the fore in order to accelerate the innovative development of society [1]. Innovation is one of the main instruments of reform, which helps not only to avoid crises, but also successfully deal with them. Education is not an exception.

In accordance with the Law of Ukraine «On Higher Education», the notion «university» implies the carrying out of «innovative educational activities at different levels of higher education (including the Doctor of Philosophy)». «The subjects of innovation activity are scientific, scientific and pedagogical workers, persons



studying and working in institutions of higher education (IHE) and employees of enterprises. They and higher education institutions carry out innovative activities together. Institutions of higher education may be the founder (co-founder) of other legal entities whose subject matter is the proof of the results of the scientific and scientific and technical activity of the higher educational institution to the state of the innovative product and its further commercialization. The National Higher Educational Institution has the right to form innovative structures of different types (scientific and technological parks, business incubators, small enterprises, etc.) on the basis of the combination of interests of high-tech companies, science, education, business and the state in order to implement and implement innovative projects» [2].

«Institutions of higher education have the right to independently develop and implement their own innovation programs and introduce a rating assessment of innovative achievements of participants in the educational process, etc. The main tasks of their innovation activities are the obtaining of competitive scientific and scientific-applied results; the introduction of innovative products into production, other sectors of the economy; application of new scientific, scientific and technical knowledge during training of specialists with higher education; formation of modern scientific personnel potential capable of providing development and introduction of innovative scientific developments» [2].

In the «National Doctrine of Education Development» it is stated that «in Ukraine, accelerated, advanced innovative development of education should be provided by updating its content and organizing the educational process in accordance with democratic values, market principles of the economy, modern scientific and technological achievements». It is emphasized, that organizations need experimental verification and examination of educational innovations, introduction of mixed financing of innovative projects in education, implementation of targeted innovative programs aimed at increasing Ukraine's participation in cooperation in the international educational services market [3].

Today there are various methodological approaches to determining the essence of innovation in educational activities. V. Zhukova considers «innovations in educational activities or educational innovations» as «any target activity, organizational decision, system, procedure or method of conducting educational activities that are significantly different from established practice, are first used in this organization and aimed at raising the level the effectiveness of the organization's operation and development in a competitive environment» [4]. A. Khutorskoi [5] and L. Danylenko consider educational innovations in socio-economic, psychological-pedagogical, organizational-managerial, and scientific-industrial aspects.

On the other hand, for the description of innovative activity in education, researchers use the term «pedagogical innovation». So, H. Syrotynko characterizes it as «a new pedagogical product - the result of the process of creating a new one, which respectively updates the pedagogical theory and practice» [7].

The concepts of «pedagogical innovation» and «educational innovation» are not synonymous. The educational and pedagogical subsystems of education have certain characteristics in relation to the goals, subjects, content of activities, methods and means, organizational forms and results. In particular, the pedagogical subsystem provides the acquisition of certain knowledge, the formation of specific skills and skills, and the educational provides their acquisition as a system. Educational innovations relate to the educational system, its structures and processes, which occur in it. Pedagogical innovations cover the sphere of pedagogical process (original methods of development of various forms of thinking, creative abilities, social and adaptive possibilities of a person, etc.). So, pedagogical innovation is one of the varieties of educational.

Innovative investments can be implemented in the pedagogical process of providing knowledge (in the means and approaches of training, the mechanisms for mastering the received information), and in the structures that it provides (management organization, resource provision, etc.).

Relying on the definition of «innovations» in the Law of Ukraine «On Innovation Activity», «innovation in education or educational innovations» can be interpreted as newly created (applied) and (or) advanced technologies, products or services, organizational and technical decisions of educational, administrative, commercial or other character that significantly improve the quality, effectiveness and efficiency of the educational process» [8]. At the same time, concepts, theories, systems, models, methods, technologies, methods, techniques, forms in educational activities and in providing educational process can be an innovative product in education.

In addition, educational innovation is the result of scientific research, advanced pedagogical experience of individuals and entire groups. Pedagogical process itself requires innovations in the content, forms, methods of teaching and education, in the organization of the joint activities of teachers and students. If earlier, innovation activity in education was limited to using the innovations recommended above, now it has a research and exploration character, namely: new training programs and training materials are developed, new techniques and ways of learning are used. In modern conditions, the teacher must act as an author, researcher, user and advocate of new technologies, theories, concepts. At the same time, at the level of educational institutions, educational management bodies, targeted selection, evaluation and implementation of best practices, new ideas and techniques are carried out.

Innovation is the result of an innovation process, which is defined as the process of using innovations associated with its acquisition, reproduction and implementation. Part of researchers do not refer to innovative processes of development, use and dissemination of educational innovations, limiting the definition only to the creation of a new one. In our opinion, the process of finding innovative ideas; creation (development) of innovative products in pedagogical science and education system; their perception by the social-pedagogical community and the system of education (thanks to the theoretical, methodological, and psychological preparation

of the participants); mastering - assimilation and application (implementation in practice through the development of appropriate recommendations); current use; the evaluation of productivity and effectiveness, and further dissemination will be innovative in education.

Taking into account a variety of approaches to the definition of an innovative product in education, the main features that reflect the specificity of innovations in education can be the following:

- the purposefulness of changes that make new elements (innovations) into education and cause its transition from one qualitative state to another. Innovations are only those changes that lead to changes in results, effectiveness and quality of education (through its content), change in the ways to achieve them (through the forms, nature and organization of the educational process);
- the presence of specific features that are associated with socio-psychological and other aspects of pedagogical activity;
- initiating innovative changes at any level of the educational sphere (teacher, student, management of an educational institution, state and local government education and self-government in the field of education);
- innovative changes should be made in the activities and thinking of all participants in the educational process;
- innovation processes in education should be continuous and aim at continuous improvement of education;
- in order to ensure the process of continuous innovation of education, it is necessary to implement appropriate mechanisms of management of quality of education;
- the effectiveness of implementing a certain innovation depends on the level of susceptibility of the system (which implements innovation) to innovation changes and the availability of real opportunities for the implementation (introduction) of innovation.

Innovations can be categorized according to the depth of the changes introduced and divided into the corresponding levels: «zero order: regeneration of the primary properties of the system, preservation and updating of its functions; first order: change of quantitative properties of the system at constant quality; second order: rearrangement of system components to improve its functioning; third order: adaptive changes, elements of the production system to adapt them to each other; the fourth order: a new variant, the simplest qualitative change that goes beyond simple adaptive changes; the initial signs of the system do not change, there is some improvement of their useful properties; fifth order: a new generation; all or most of the properties of system change, but the underlying structural concept persists; sixth order: a new kind, qualitative change of the primary properties of the system, the original concept without changing the functional principle; seventh order: a new genus, a higher change in the functional properties of a system or its part that changes its functional principle» [9]. Use of the above general classification of

innovations can be only partially in education, since the first three levels (orders) do not cause the transition of the education system from one qualitative state to another, do not provoke changes in the goals and results of education and change the ways to achieve them. It is only about modernization, which can increase the quality, efficiency and effectiveness of the educational process, but not to a significant extent. From this position innovations can be recognized only innovations of the fourth, fifth, sixth and seventh orders.

Certain types of innovations have their own peculiarities, in particular, systemic innovations concerning radical changes in education, need and generate other types of innovations: organizational, managerial, economic, pedagogical, social, etc. If the level of novelty is partial, then changes take place only in a certain functional subsystem of education. For practical use of innovations in substantiating investment policy it is better to consider it by factors of origin, implementation, impact and consequences. It allows to determine the level of scale, scope, stages of changes and the implications of the introduction of innovations in education and the peculiarities of its innovative development in modern conditions.

For the most part, in all innovative events, information and telecommunication technologies and modern computer equipment are used. An example of such technologies is education quality management systems, document management automation and learning management, distance education and other innovations. In addition, innovations should be considered hardware (technical base) and software, in particular, the creation of a computer network, sites of different levels, providing access to the global Internet; creation of educational and methodological resources in digital form, in particular, electronic library, textbooks, system of tests, cases and informational materials.

Such systems allow to increase the efficiency of managing the learning process by optimally creating curricula, monitoring the results of training and staffing, and quickly making changes. Creating electronic educational resources requires the appropriate qualification of staff, software, and time resources and relevant investments.

Practice shows that public educational institutions, in the absence of sufficient investment resources to implement relevant large-scale innovation projects, are generally more inert in terms of innovative changes than private ones. In most institutions of higher education educational innovations are usually not perceived broadly, causing a sharp counteraction, although over time they get mass recognition. In addition, the following negative factors are significantly affected by innovation activity: lack of investment funds for donors to implement educational innovations; the limited volume of investment funds of potential recipient customers, including insufficient inflow of foreign investments into scientific developments; the deterioration of the material and technical base of education: the moral and physical depreciation of scientific and educational equipment, reducing the volume of research and practical training; lack of state investment policy on innovation

activity of educational entities, in particular, legislative provision; lack of necessary scientific, technical and personnel potential, etc.

All this leads to low innovation activity of educational institutions, in particular, a small amount of educational innovations used in practice.

The solution to this situation is to create an effective system of interaction «donor - catalyst – recipient», which activates innovation activity. In particular, the proposed system allows: the formation of an effective network «education – science – production», the creation of innovation centers, centers of technology transfer and other forms of association of the efforts of science, education, production and investment capital (including involving small and medium business); the creation of investment funds, a system of grants for the implementation of innovative projects involving the resources of state and local budgets, private capital; intensification of international contacts of IHE and research institutions; providing support for the further development of intellectual and creative potential through a system of continuous education and training, etc. So, the innovative focus is on the use of fundamentally new progressive (first of all, informational) technologies and organizational and managerial models of the functioning and development of education. In addition to the process of developing educational innovations (methods, forms, pedagogical technologies), investment support for their implementation is necessary, assimilation and further support through information provision and continuous monitoring to assess their condition and development forecasts. State Statistics Committee proposes to use the «Report on the creation and use of advanced technologies and objects of intellectual property rights» for the construction of innovation databases [10]. This form of statistical observation is intended for legal entities that created and used advanced technologies and intellectual property rights during the reporting period. It has certain disadvantages that do not allow to determine the impact of investments on the development and implementation of innovations in education in Ukraine. So, the main drawbacks of such statistical accounting are the following:

- the form is filled in only by legal entities in the field of higher education (code 85.4); at the same time during the statistical record the indicators of other branches of education (pre-school, secondary and vocational education) are ignored, which contradicts the doctrine of innovative development of education in Ukraine; in addition, innovations at the level of individual entrepreneurs who provide educational services remain out of sight and are an indicator of the effectiveness of innovative learning approaches;

- there is no financial and economic information on investment costs, results and effectiveness of the use of educational innovations, which completely devalues information from the point of view of use (to justify the attraction of investments in innovation) at different levels of education;

- innovations are not divided into «educational» and «other»: the general indicator characterizes all «innovations» that took place in higher educational institutions

and, as a rule, are created (used) by them for scientific (and not educational) activity.

Given the above-mentioned statistics on innovation development and its investment in Ukrainian education, changes and additions need to be made. In particular, it is advisable to distinguish between innovation development through its allocation to education by the amount of investment.

So, the organizational aspects of the implementation of programs of innovation, their assessment in the field of education is one of the many areas that will ensure the output of the educational sector of Ukraine from a crisis state and ensure its further development, and wake up to compel the subjects of education to improve the quality of educational services.

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# **MANAGEMENT OF INTELLECTUAL BUSINESS AS A BASIS FOR THE DEVELOPMENT OF KNOWLEDGE-BASED ECONOMY**

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The intensification of globalization processes has significantly aggravated the competition between the countries of the world, which necessitates the development and implementation of measures to ensure their competitiveness, taking into account the transition of the world economy to a qualitatively new level (post-industrial stage) of its development.

In studies of socio-economic processes characteristic of the transformation of industrial society into a postindustrial one, a number of concepts of economic development are proposed, in particular, the innovation economy, the information economy, the digital economy, the «new» economy, the knowledge economy, the knowledge-based economy. Common to them is the recognition of the priority value of information and knowledge in economic development.

The main characteristics of the postindustrial stage of the economic development of society are determined by the essence of the category «postindustrial society», formulated by D. Bell. He noted that «a post-industrial society is a society in whose economy the priority shifted from the production of goods to the production of services, the conduct of research, the organization of the education system and the improvement of the quality of life ... in which the introduction of innovation ...increasingly depends on achievements theoretical knowledge» [1]. According to this formulation, the development of the economy in society is stimulated through knowledge.

So, the post-industrial stage of economic development is a knowledge-based economy. Its development is stimulated by knowledge, which becomes the basis of material production through the constant development and implementation of innovations based on resources, products, services, technologies and communications.

Increasing the dependence of the competitiveness of national economies on knowledge, as well as the ability to accumulate and use them together with natural and material resources to create economic benefits, determines the only possible direction for ensuring the competitiveness of countries-the formation and development of a knowledge-based economy.

By the mid-1990s, the category «knowledge-based economy» had not been

clearly defined.

In 1996, the OECD defined a knowledge-based economy as an economy that is directly based on the production, dissemination, use of knowledge and information [2].

So, the categories «knowledge economy» and «knowledge-based economy» are different. The essential difference is that in the knowledge economy, knowledge is a product, and in a knowledge-based economy knowledge is a means of production («tools of labor»). In fact, this opinion was spread by P. Drucker, arguing that knowledge technologies (knowledge engineering, knowledge management) are used to create economic advantages [3].

But over time, the term «knowledge economy», which was proposed for a particular sector of the economy, was used to characterize a new type of economy where knowledge plays a decisive role, in fact identifying it with the category «knowledge-based economy».

The intensification of economic activity, saturated with knowledge, in the leading countries becomes the main indicator of the level of development. It is this position of many states that contributed to the priority development of the intellectual business in them. The main activity of its subjects is intellectual, the main resources - the knowledge and experience of personnel, the products - intellectual product and intellectual service. It has certain features of his organization and management.

One of the key processes of managing the intellectual business are processes of managing human capital and potential as the main resources of enterprises of such business.

Human capital management is considered as a set of methods, forms, tools, criteria, functions for the formation, development and accumulation of human capital, which is formed and operates in accordance with the system of production relations, aimed at satisfying the economic interests of the enterprise [4].

Managing human capital in relation to the employee's personality requires taking into account two directions, namely:

- internal, which refers to the inner desires and aspirations of the person (the carrier of human capital);
- external, that is, a system of management signals generated by the entity managing human capital or other carriers of human capital that directly interact with each other, or their aggregate.

Human capital, like the physical, is created and accumulated through investment.

Investing in human capital is aimed at developing and acquiring values (in the form of knowledge, skills, abilities and skills) that form the basis for the use of human capital.

Investments can be carried out as:

- investment of financial resources, that is, expenses, for example, for the physical formation of a person, upbringing, education;
- the implementation of certain types of activities and processes that allow



employees to accumulate knowledge, experience, skills (research and innovation, the process of self-learning).

Managing human capital requires consideration of its specific specificity and specificity of processes that are inherent in it:

- the return on investment in human capital directly depends on the life span of its carrier (duration of the able-bodied period), in fact, the sooner investments begin in a person, the faster they start giving returns;
- quality and long-term investments give a more significant and long-term effect for its accumulation and use;
- there is a tendency to physical and moral deterioration;
- human capital is able to accumulate even without financial investment;
- the accumulation of human capital helps to increase its profitability, but up to a certain limit of active labor activity;
- the nature and types of investments in a person are determined by historical, national, cultural characteristics and traditions;
- In comparison with investments in other forms of capital, investments in human capital are the most profitable for both the enterprise and the individual.

Investing in human capital is constrained by the following factors:

- the lack of a guarantee of obtaining the expected result and a high risk of investment (the employee can switch to another, for example, a highly paid job, and the economic benefit from investing in the renewal of fixed assets is quite predictable and accurately determined at cost)
- the investment period of human capital is much longer than the investment in physical capital (training a specialist in higher education institutions lasts 5-6 years, and the replacement of equipment for several days or months);
- investments in improving the quality of personnel for the formation of human capital must be carried out continuously, not temporarily or once, as this reduces their overall effectiveness;
- With the end of active working life, the use of accumulated human capital is significantly reduced.
- the return on investment depends on the lifespan of the carrier of human capital.

However, it should be noted that only the presence of a certain set of professional knowledge, skills, skills and relevant personal characteristics of staff is not human capital. They turn into capital when they are used in business processes to generate income.

So, the leaders of the Subjects of Intellectual Business should perceive qualified personnel as the most important asset with great potential, and investing in the formation of human capital is considered one of the important forms of investing that generates income and promotes business development.

Education is essential for the formation and use of human capital, and the need for continuing education is determined by the rapid pace of socio-economic development.

The peculiarity of the existing systems of retraining of personnel is that they are the constituent elements of integrated programs for staff development, while the problems of professional and qualification growth are necessarily provided for by the enterprise development plans.

Human potential accumulates the mental activity of employees, their potential intellectual abilities, knowledge, skills, practical experience, professional and personal ties, personal development, the ability to self-motivate and self-learn, spiritual and moral values.

The formation of a policy for the accumulation of human potential should be coordinated with the strategy of personnel management, be based on the competence of management, combine in a single system personnel management and performance management of the enterprise as a whole.

A characteristic feature of the effective activity of the subject of intellectual business is the availability of highly qualified specialists able to realize their potential as effectively as possible.

The employee development management subsystem should be responsible for:

- formation and effective use of knowledge funds;
- forecasting the need for intellectual resources;
- Identification of the emotional, psychological and intellectual potential of employees;
- Increase the productivity of the intellectual work of employees due to their proper placement, taking into account emotional, psychological and intellectual compatibility;
- Implementation of measures to develop mutual understanding, inclination to interact while working in a team, encourage initiative work, develop leadership skills and a propensity for creative work.

Providing conditions for staff development and development, organization of the process of constant replenishment of knowledge for the formation of human potential will require:

- analysis of factors affecting the development of intellectual potential;
- forecasting the need for acquiring new knowledge by employees of the enterprise;
- stimulation of intellectual development of personnel;
- development of a program for implementing measures aimed at increasing the intellectual base [5].

The availability of the necessary basic knowledge for the personnel is clearly not enough for the enterprises of the intellectual business. Employees must have the capacity for deep thinking and the constant accumulation of new knowledge, which will ensure the growth of human capital and the development of human potential.

The most significant problem of the formation and development of human capital and potential can be the gradual «stinging» of a person due to the active influence of the computer and the Internet on his brain, the tendency of which has

already been noted by researchers.

People, who are fascinated by the tempting opportunities offered by digital information technologies and the Internet read and remember less, which harms the thinking process and hinders the development of a person [6].

«The depth of our intellect depends on the ability to transfer information from a working memory to a long-term one and to create conceptual schemes on its basis». «When we read a book, information comes to us dosed» and, «due to the focused concentration on the text, we can gradually transfer information into long-term memory and form associations that are important for creating schemes». «In the case of the Network, we are faced with multiple and extremely active sources of information», «we are able to transfer only a small amount of information to long-term memory». «We cannot turn new information into schemes. Our ability to learn begins to suffer, and our understanding becomes shallow» [7, pp.. 106-07].

To confirm the foregoing, let us compare the values of the two criteria used by the IMD World competitiveness center to form the IMD World Digital Competitiveness Rankings. It assesses the degree of the economy’s ability to study and implement digital technologies. In particular, consider the criteria that are directly related to a person, namely «Digital/ Technological skills» and «Educational assessment PISA – Math».

Figure 1 shows that in the countries where digital skills are less developed, the ability of young people to think and therefore potentially develop turns out to be a high pain.

Thus, Singapore ranked twelfth place on the criterion of «Digital/Technological skills» leads by the criterion «Educational assessment PISA - Math».

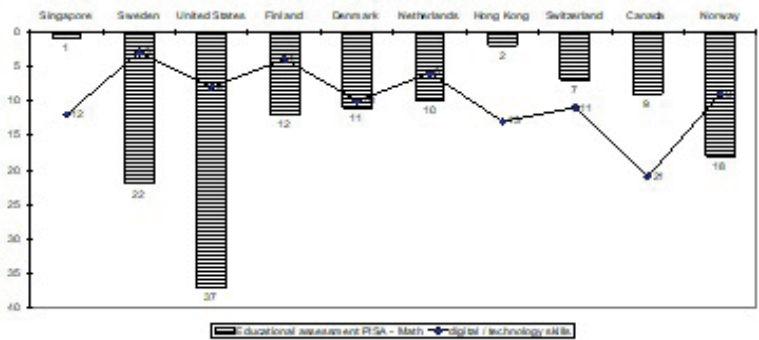


Fig. 2. Criterias of the sub-factor «Talent» for Top 10 countries in World digital competitiveness ranking [8]

The United States taking the eighth position in the rating of digital skills were on the 37th place on educational achievements of young people. Hong Kong becoming

the 2nd in the rating on the evaluation of education occupies only the 13th position in terms of digital skills.

This trend is not unique to the 10 countries of the Digital Competitiveness Ranking. there is similar ratio of the values of these criteria for the majority of other countries assessed by IMD

An effective human capital management system allows to significantly increase the competitiveness of any enterprise. For subjects of intellectual business, it actually h capital, the most influential factor in the growth of their market value.

The formation of human potential is a responsible process of managing intellectual resources of subjects of intellectual business as a source for the replenishment of human capital. Its effective use is a key factor in their successful operation.

The development of intellectual business facilitates the intellectualization of enterprises and the development of intellectually-oriented entrepreneurship, which together will ensure the development of a knowledge-based economy.

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## FEATURES OF HUMAN CAPITAL MANAGEMENT IN THE ACHIEVEMENT OF ENERGY GOALS

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In order to accelerate the development of the energy sector of Ukraine, it is necessary not only to switch to innovative technologies, use the latest technologies in the industry, renewable energy, but at the same time to develop human capital.

According to the notion of interpretation, «human capital» is «a determining factor in the economic post-industrial development, the accumulation of social capital of societies, which positively affects human development» (Shangina, 2016).

The application of a socio-professional criterion as a basic one is complicated by the existence in Ukraine of two relatively separate systems of public assessment of socio-cultural potential of employees (private, public). In them, the level of income, the idea of their social status, lifestyle, those who have a similar vocational qualification, are very different. The non-state-owned energy sector, experiencing the urgent need for qualified specialists, is ready to pay higher wages. The state sector (as before) carries the imprint of «equalization», a nihilistic attitude to intellectual work, and so on. Therefore, there is a stratification of specialists on layers that differ significantly in their state. For example, among the highly-skilled professionals are employees of the managerial, economic and legal sector in the private sector, specialists in the scientific and technical field, employed in the fuel and energy complex and in other export industries (Shangina, 2016).

However, as the study showed, far from all the employees of the fuel and energy complex can be attributed to this category. This is especially the case for energy generating companies.

It is necessary to research, further use of international practices on the application of cooperation between universities, the energy business sector, and the development of joint curricula (Negro, 2017).

Given the integration of Ukraine's energy sector into European and world economic spaces, Ukrainian officials are faced with completely new issues that require urgent and effective solutions. A separate place among the newest issues is the participation of energy sector employers in the social protection of their employees. Therefore, the role of the social package for energy workers in the economic security of enterprises in the conditions of Ukraine's integration into the European and world economic space is the urgent issue.

The social responsibility of the Ukrainian power company to its employees should become a daily norm. That is why, in the context of integration into the European and world economy, the theme of developing a social package for workers is today relevant to both Ukrainian entrepreneurs and hired workers who are directly interested in developing social assistance, guarantees and other equally important components of the social package.

As shown by our analysis of published materials problems of «society-business» relations earned considerable attention. In domestic and foreign economic science, this issue is covered by the works of such scholars as Aliyev I., Aplin O., Antonyuk Y., Armstrong M., Gorobets N., Dreval O., Libanova E., Lokteva N., Polishchuk I. and others.

The benefits of the social package for workers (including the energy industry) are covered in the works of Arsenyev A., Babinina L., Belyaev O., Bilyavsky V., Vinokurova E., Melnyk S., Novak I., Stogok L. and others.

The problems of forming a social package from the point of view of corporate management and corporate responsibility are studied by such economists as Bajra L., Butko M., Murashko M., Evtushevsky V., Kolesnikov G., Koppek V., Kuzmin O., Melnyk O., Nazarenko V., Tsiganenko V., Tsimbalyuk S., Shostak I. and others.

However, despite the in-depth analysis of the essence of the social package for employees, the problem of developing a competitive social package at Ukrainian energy companies remains dimmed by the lack of coverage, informing about the benefits of social packages of potential employees, etc.

As shown by the analysis of European experience, social policy, the participation of partners (in particular, employers) in its construction have undergone significant transformational changes. At the same time, this led to the departure of an individual employer organization, moreover, a separate country. A supranational direction of social protection has been created.

Based on the analysis of published materials, we can conclude that social motivation is one of the potential types of material and moral motivation of workers in the world economy. It should include the provision of a social package. Competitive social policies point out that owners and management of enterprises should not only seek to maximize their own profits (only for their own benefit) but also to attach importance to the social provision of wage earners, the creation of decent working conditions, the preservation and enrichment of human capital, etc. That in the long run will contribute to the achievement of the strategic goals of

the organization, in particular, to maximize profits. Unfortunately, this is followed very weakly in Ukraine. The vast majority of enterprises (their owners) want to instantly enrich themselves, not caring about the future of their enterprise, about human resources.

The emergence of a social package as one of the methods of motivating staff is due to many reasons, the key among which is the shortage of highly skilled workers in the labor market. In the world economy it is rather difficult not only to find the appropriate specialist, but also to keep it in this particular organization due to hard competition in the labor market. That is why, by establishing appropriate wages, additional incentives should be offered, which will help to retain the employee in the organization for a significant period of time (preferably for entire career) (Melnikova, 2014). In addition, achieving a stable position in the enterprise, the employer is not able to infinitely increase the level of wages, while the social package can be expanded with new components (Tyazhelnikova, 2005). This will help increase labor productivity and optimize the costs of managing human resources of the company, etc.

As for Ukraine, during the crisis management of most energy companies practically forgot about the needs of their employees. It does not pay attention to the fact that in the conditions of a sharp increase in prices for all, including vital goods, services (in particular, utilities), employees have a rather difficult time.

In the absence of any other components (other than mandatory, envisaged (approved) Ukrainian legislation), the social package, not paying attention to the needs of their own personnel management of Ukrainian enterprises faced with a significant level of outflow of the best professionals to other enterprises (including foreign), where these components are effectively used. Given the European integration of our state, the facilitation of movement between countries (the elimination of barriers, in particular, the simplification or complete abolition of visa regimes).

Competitive companies (especially foreign ones) effectively use additional components of the social package, familiarizing them with potential employees will be able to easily capture the best professionals to themselves. At the same time, the cost of the social package is not extremely high (the only thing that holds back virtually all owners and managers of Ukrainian enterprises is that it is necessary to finance all expenses for the social package only from the profit of the organization). And although the costs of the additional components of the social package are not very high, they will ultimately be able to bring significant effect (including economic) from the implementation of the enterprise.

But if you think strategically, then these extra social package costs are investing in the future of the company, in its human capital, which is vital for achieving strategic goals and, of course, the mission of the enterprise.

Therefore, for effective work in crisis economic conditions, Ukrainian enterprises need to focus on employees, as one of the main and most important

factors of the internal environment and a productive component of the Ukrainian economy as a whole. This will reduce the staff turnover and thereby increase the level of economic security of Ukrainian energy companies.

Even though there are already among Ukrainian employers those who are fully aware of the importance of social and other benefits (components of the social package) for forming long-term partnerships with their employees, this does not apply to the country's energy sector.

Based on the analysis of published materials, so far there are many thoughts in Ukraine, but there is no single notion that clearly defines the essence of the social package, there is no unity among economists and practitioners as to the structure, list of payments, which must form a social package for Ukrainian corporate employees.

We propose to define a social package for energy companies (although it may also be applied to other industries) as a motivational tool, through the compensation provided by the employer to its employees in accordance with the norms of the current Ukrainian legislation, as well as in order to stimulate the work and commitment of employees, as well as guarantee social protection in the future.

Increasing the level of attractiveness of the social package will allow Ukrainian enterprises to attract and retain more highly-qualified professionals, that is, there will be competition between enterprises-employers in the labor market not only in terms of wages, but also in terms of content, volume of social benefits, etc.

As the study of the world practice of creating social guarantees for employees, the development of the social package was carried out in several stages (Rapetyacka, 2010, Tyazhelnikova, 2005, Melnyk, Kuzmin, Panaesko, 2012).

At the beginning of the 1970s, the system «Cafeteria» began to operate, which envisaged the valuation of each kind of material goods; for each employee a certain amount of points is set and an independent definition of a set of material goods is established. In the 1980s, the system was oriented on family values, in the 1990s, a system for optimizing the workplace, and in the 20th century, the lifelong guidance system was used as the most effective method of encouraging and retaining employees.

In order to improve the existing system of employee motivation in Ukraine, first of all, it is necessary to determine the baseline for the development, implementation and provision of a social package for employees of energy companies and organizations.

After setting goals and defining the baseline for developing, implementing and providing a social package, it is expedient to analyze the components of this package.

The conducted studies have shown (Tsimbalyuk, 2013) that the core elements (according to the hierarchy of importance for employees) are as follows:

- 1) medical insurance (health insurance) of the worker (full or partial reimbursement of treatment costs);
- 2) full or partial payment of training of an employee in higher educational



establishments;

- 3) payment for training of the employee at advanced training courses;
- 4) full or partial payment of food for workers during the working day (breakfast, lunch, dinner) in the company's dining room or the use of catering;
- 5) reimbursement of leisure travels for the employee and his/her family members;
- 6) providing with free of charge or discounted accommodation rental options;
- 7) preferential prices for products (for example, electric power), etc.

Ensuring an acceptable social package will allow the employer to achieve the following goals: to create a positive image (including as an employer in the labor market), to reconcile the strategic goals of the organization with the personal goals of employees, to increase the level of productivity and commitment of employees, to optimize the costs of personnel management and social compensation (not including the mandatory), improve the socio-psychological climate, improve the quality of work and the safety of the organization as a whole (including the economic first).

To sum up, it should be noted that Ukrainian business will sooner or later also be forced to move to civilized relations with its own employees. That is to develop a line of behavior in accordance with the adopted in a civilized world. And for this to happen, it's necessary to develop a strategy today. We are invited to introduce a competitive social package by Ukrainian employers taking into account the factors of the environment.

In addition, achieving a stable position in the enterprise, the employer is not able to infinitely increase the level of wages, while the social package can be expanded and complement all new components. This will help increase labor productivity and optimize the costs of managing the personnel of the enterprise.

Regarding the further directions of the research, it is advisable to draw attention to the involvement of employees in the formation of the social package in order to select the main criteria for evaluating the effectiveness of the package and optimizing the proportion of its components.

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## **OPERABILITY OF COMPANIES PERFORMING PUBLIC FUNCTIONS IN HUNGARY, CZECH REPUBLIC, UKRAINE AND ROMANIA**

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To secure the sustainable management of business companies owned by local government, it is inevitable that these firms manage the assets of the local-governments efficiently and follow the principles of business continuity management anytime. It means they must not get so heavily indebted that debts endanger their further operation. The local governments and their companies are expected to provide high-quality public services and public assets for the society. In our study, we analyze some Hungarian, Czech, Ukrainian and Romanian companies owned by municipalities in due consideration of the corresponding figures.

Companies owned by municipalities perform the vast majority of public tasks, therefore their existence is very important for the business management of local-governments. As far as their management is concerned, companies owned by municipalities are run as public law companies, but their business management is

highly influenced and determined by the local-government owning them and the corresponding legislative provisions (Hegedűs – Zéman, 2016). If budget income and expenditures are efficiently synchronized, it can be assumed that the business management of these companies complies with the accounting principles (Lentner, 2017). In terms of national economy, it is indispensable that objective business management information are available about business participants running their business according to the budget procedure and their companies. These objective data give a fair view of the earnings, assets and financial position of business actors running their business according to the budget procedure and their companies (Lentner, 2014). Business participants conducting their business management according to the requirements of budgeting are obliged to carry out their business activities in compliance with the accounting principle of business continuity management because assets of local municipalities have to be considered as state properties and the companies in question perform their public tasks using the assets of municipalities (Lentner, 2013a; Lentner, 2013b). To secure the sustainable operation of local-governments and companies owned by them, it is necessary to establish an appropriate control system which enables to reduce risks related to the arising problems. Business operation of municipalities and their companies as well as the control system used by them determine asset groups financing, cost-effective operation, the corresponding design-analysis tasks and the support of decision-making (Zeman, 2017).

Material and method. When conducting the study, we analyzed the financial figures of Hungarian, Czech, Ukrainian and Romanian business companies owned by local-governments between 2014 and 2016. This research is based on the findings of the study conducted by Hegedűs (2016a, 2016b) where the capital structure and business management of business companies owned by municipalities were analyzed focusing on the period between 2010 and 2013. The main focus was on the business management and the operation of the companies as well as on the corresponding risks. Hegedűs came to the conclusion that the vast majority of risk factors are generated by profitability and capital structure issues. Consequently, it is not the liquidity that proves to be the most important risk factor. In this study, we also review the figures of Czech, Ukrainian and Romanian business companies owned by municipalities. We investigated liquidity and equity ratio of Hungarian, Czech, Ukrainian and Romanian companies owned by municipalities between 2014 and 2016.

## Research findings.

### Hungary

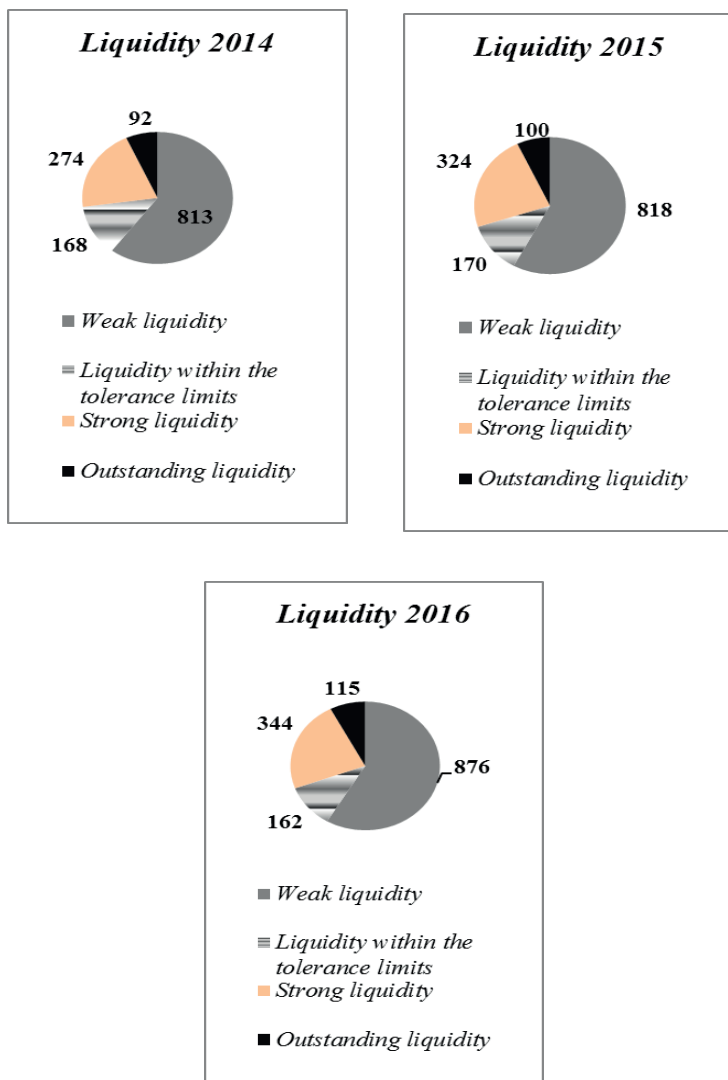


Fig. 1. Liquidity of Hungarian companies owned by municipalities between 2014 and 2016 (data in pcs)

Source: Own research according to SPSS output

In this study , we analyzed the liquidity of Hungarian companies owned by

municipalities between 2014 and 2016 (Figure 1). According to their liquidity, we divided companies into 4 groups. Companies have weak liquidity if their liquidity ratio does not reach the level of 1,3 which is acceptable according to the specialist literature. It means that the liquidity ratio is between 0 and 1,3. We assigned companies having a liquidity ratio between 1,31 and 1,8 to the group of firms with liquidity within the tolerance limits. When doing credit rating, credit institutes give especially high points to companies having a liquidity ratio of 1,8, therefore group 3 consists of companies with strong liquidity where liquidity ratio is between 1,81 and 5. Companies with a liquidity ratio of over 5, i. e. firms, which have considerably less short-term payables than current assets, were divided into the group of companies with outstanding liquidity. Of the 1701 companies examined 354 did not provide information about their liquidity ratio in 2014. In 2015, data of the liquidity ratio of 289 companies were not available. In 2016, 204 companies did not give information about their liquidity ratio. Figure 3 clearly shows that the vast majority of companies belong to the category of firms with weak liquidity. In 2014, the number of companies divided into the group of firms with weak liquidity was approximately the same as in 2015. The number of companies with weak liquidity increased in 2016. When you take a closer look at the other groups, you can see that this increment is not due to the fact that the liquidity of companies worsened because the number of companies of each group has risen, except for one group, but to the decreament of the number of companies in 2016 which did not provide any information of their liquidity ratio. Approximately the same number of companies was divided into the group of firms with liquidity within the tolerance limits in all three years. By 2016, there had been a slight increase in the number of companies with strong and outstanding liquidity. We have to highlight that this was not due to the liquidity enhancement, but to the fact that more data were available.

During the research, we divided the companies into 5 groups according to their equity ratio (Figure 2). The first group consists of companies that have negative equity. Companies with very low equity ratio (between 0 and 30%) belong to the second group. Companies with an equity ratio of between 31% and 50% belong to the firms with a low equity ratio. In the group with acceptable equity, there are companies with an equity ratio of between 51% and 70%. We qualified business companies with an equity ratio of between 71% and 100% as firms with a stable equity. Certainly like in the field of liquidity, there were companies the figures of which were not fully available. In 2014, in case of 397 companies, in 2015 in case of 286 firms and in 2016 in case of 198 companies, equity data were not available. In almost each group, we saw an increase in the number of companies in the years in question. Only in 2015, there was a backfall in the number of the companies with negative equity, but this number reached the level of 2014 in 2016. Equity values look better than liquidity values since we divided the vast majority of the reviewed enterprises into the group of companies with stable equity.

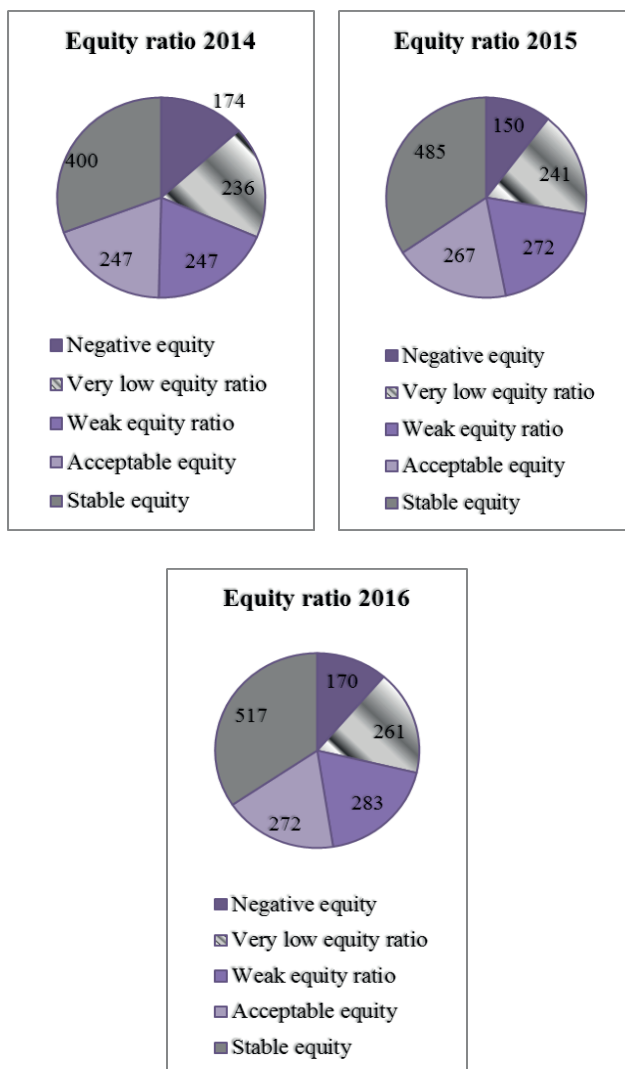


Fig. 2. Development of the equity ratio of Hungarian companies owned by municipalities between 2014 and 2016 (data in pcs)

*Source: Own research according to the SPSS output*

### *Czech Republic*

The third figure shows the liquidity of enterprises in Czech Republic.

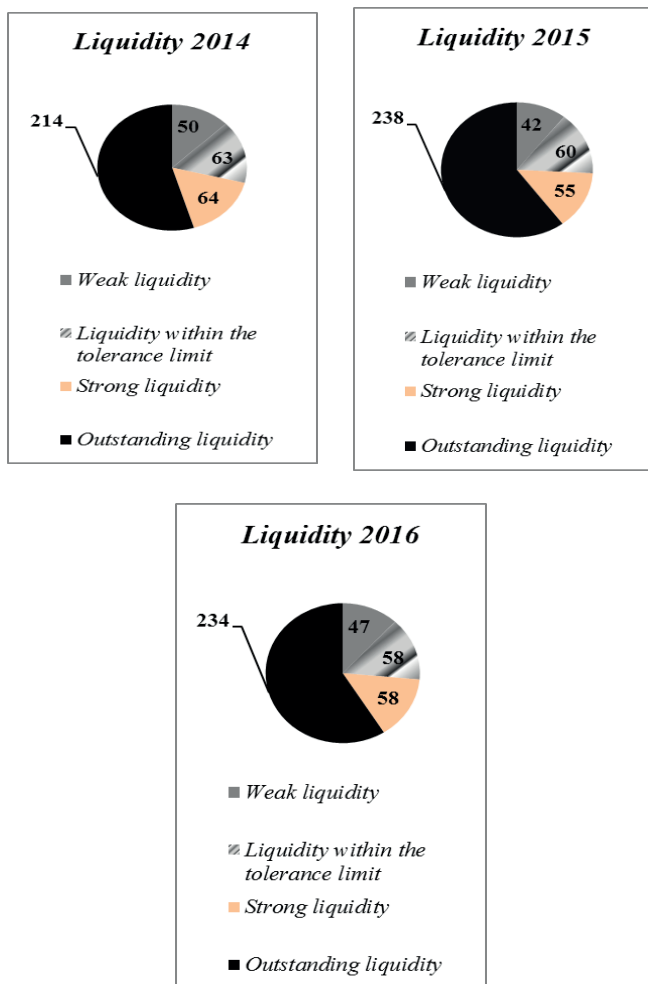


Fig. 3. Liquidity of Czech companies owned by municipalities between 2014 and 2016 (data in pcs)

Source: Own research according to SPSS output

During the analysis, the data of 426 enterprises performing public tasks were available for us. In the three years under investigation, by analyzing the liquidity ratios, we can say that more than 60% of the companies had a strong or outstanding liquidity, and it had not been changing over the years. Between 2014 and 2016, only 11-13% of companies could be considered having a weak liquidity (Figure 3).

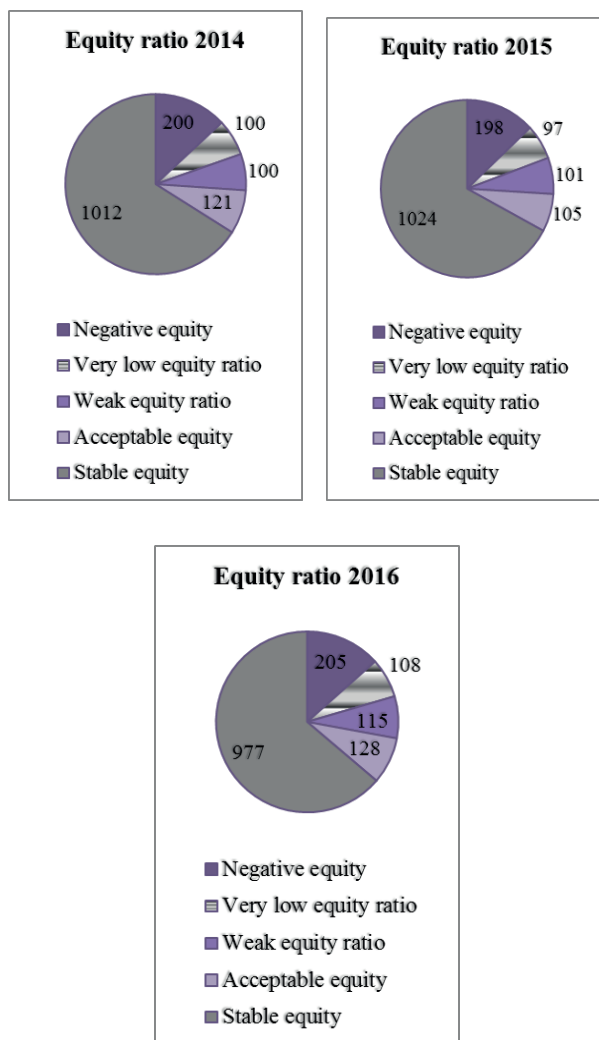


Fig. 4. Development of the equity of Czech companies owned by municipalities between 2014 and 2016 (data in pcs)  
*Source: own research according to the SPSS output*

The situation is also favorable when it comes to capital structure (Figure 4), because 50% of the investigated companies are stable in equity and 20% of them have an acceptable equity ratio. Only 2-4% of the companies had negative equity in the three years under review. 22-25% of the companies had weak or very weak equity. Overall, between 2014 and 2016, there was no significant change in the



ratios of the enterprises.

### *Ukraine*

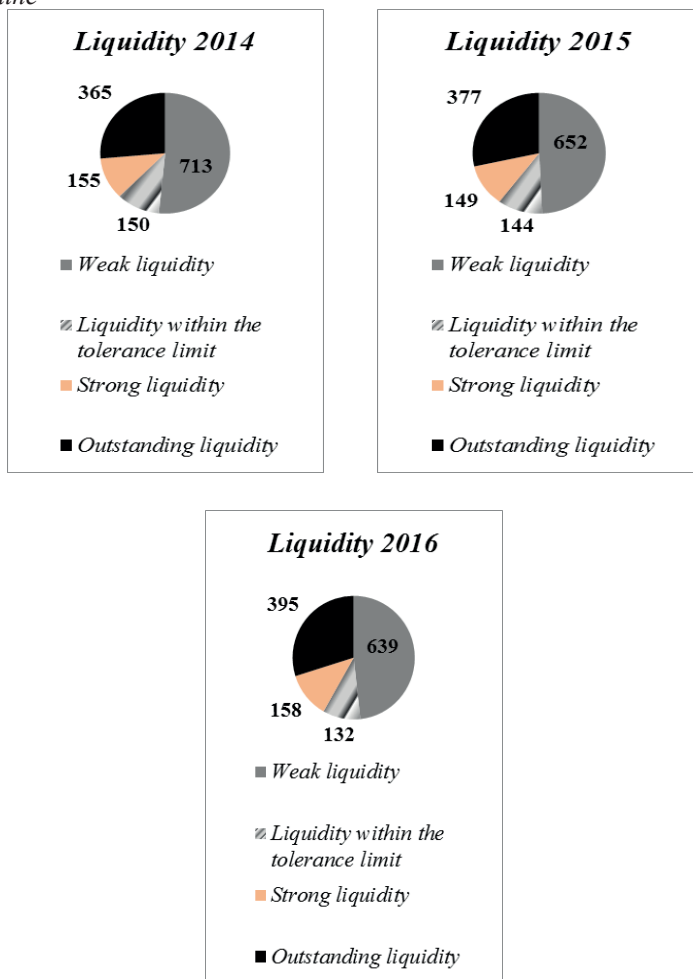


Fig. 5. Liquidity of Ukrainian companies owned by municipalities between 2014 and 2016 (data in pcs)

*Source: Own research according to SPSS output*

Almost 50% of Ukrainian corporates can be considered as weak in liquidity in 2014, and this value only had a minimal improvement in 2015 and 2016 (it achieved 48-49%). The number of companies with outstanding liquidity was growing in the analyzed period, while the proportion of companies with outstanding liquidity was

26,4%, and it was 29,8% in 2016. The proportion of companies with liquidity within tolerance was 10%, and the ones with strong ratio was 11% in every investigated years (Figure 5). All in all, it can be said that in the analyzed period the number of companies with strong and outstanding liquidity was growing, and the ones with weak liquidity was decreasing.

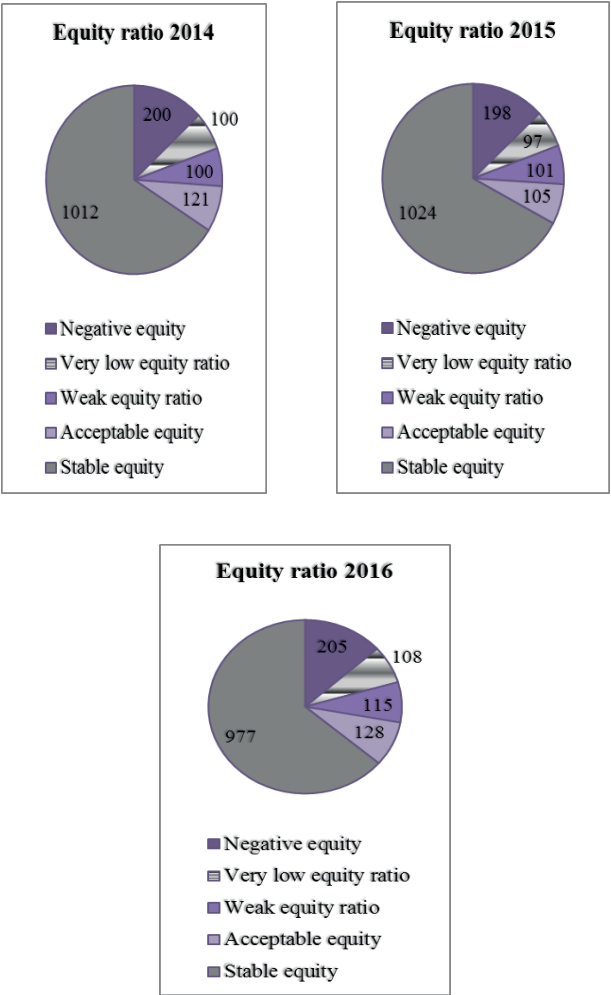


Fig. 6. Development of the equity of Ukrainian companies owned by municipalities between 2014 and 2016 (data in pcs)

Source: Own research according to the SPSS output

When it comes to equity, the picture is more favorable in case of Ukrainian

enterprises than the liquidity ratios (Figure 6). In the period of the investigation, the proportion of companies with stable capitalization was more than 60%. We cannot see significant change in this period, the proportion of companies with negative equity ratio was 13%, weak and very weak was 6-7%, and the proportion of acceptable ones was 7-8% in all of the three years.

Romania

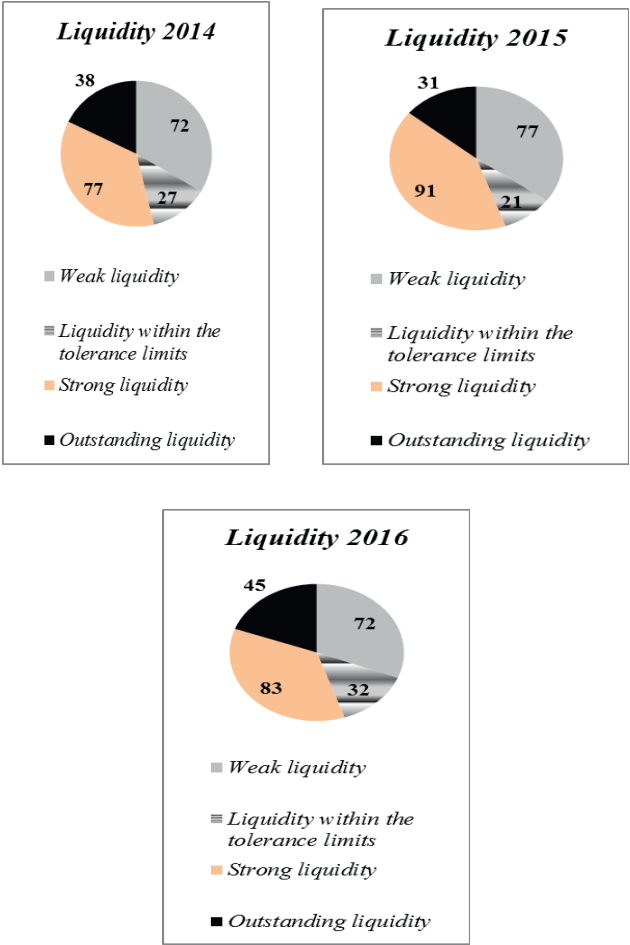


Fig. 7. Development of the liquidity ratio of Romanian business companies owned by municipalities between 2014 and 2016 (data in pcs)

Source: Own research according to the SPSS outputs

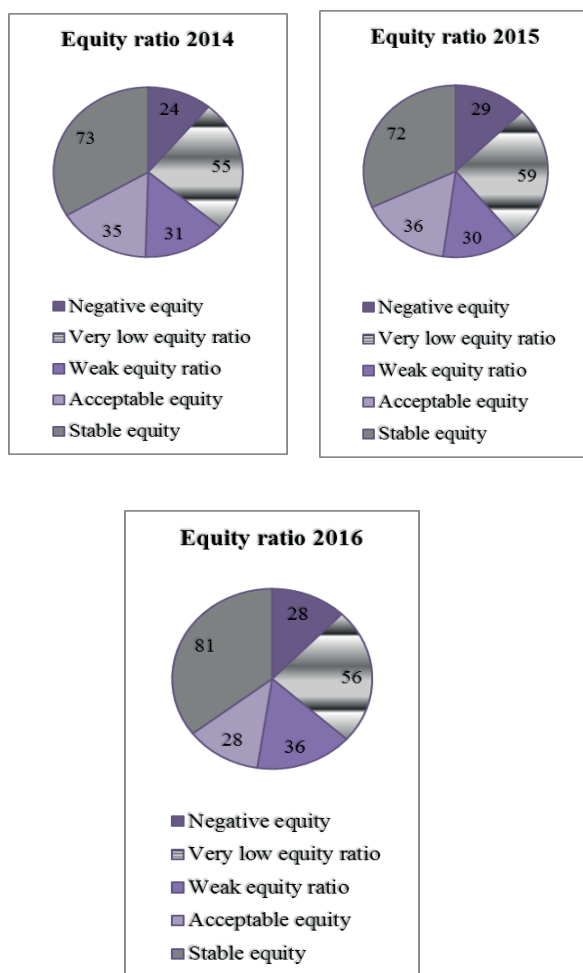


Fig. 8. Development of the equity of Romanian companies owned by municipalities between 2014 and 2016 (data in pcs)

*Source: Own research according to the SPSS output*

In Romania, there are considerably less companies (only 237 firms compared to the 1701 similar companies in Hungary and 1641 similar companies in Ukraine) which are owned by municipalities. The significant difference between the liquidity of Hungarian, Czech, Ukrainian and Romanian companies is that almost 50% of the reviewed Hungarian and Ukrainian companies were divided into the group of firms with weak liquidity while only 30% of the Romanian companies and Czech companies belonged to the group of the firms with weak liquidity in the reviewed

period (Figure 7). In each investigated period, the number of companies with strong liquidity was higher than the number of firms with weak liquidity. In the reviewed 3 years, we did not see a significant difference in the composition of the groups. All things considered, liquidity ratio developed better in Romanian and in Czech companies than in Hungarian and in Ukrainian companies.

Figure 8 shows the equity ratio development of Romanian companies owned by municipalities. If we take a closer look at how equity ratio developed in Romanian companies, we can not discover a significant difference compared to the Hungarian firms. In 2014, 38% of the Hungarian companies had an equity ratio of less than 50% and in 38% of them, equity ratio was higher than 50% (during the research, equity data were not available in 24% of the reviewed companies). By 2015, the only change that had occurred was that the number of enterprises with an equity ratio of over 50% rose to 44%. In 2016, 42% of the Hungarian companies had an equity ratio under 50% and in 46% of the firms, equity ratio was higher than 50%. In 2014, 46% of the Romanian companies had an equity ratio of less than 50% and the proportion of companies with an equity ratio of more than 50% was also 46%. In 2015 and 2016, this ratio was 50-46%. All things considered, Romanian companies were not stronger than Hungarian firms, Czech companies and Ukrainian firms in terms of equity ratio.

**Conclusions.** In our study, we took a closer look at Hungarian, Czech, Ukrainian and Romanian figures of the business companies owned by local-governments. It is clearly recognizable that in order to improve efficiency, Hungarian and Ukrainian municipalities are more likely to assign their task of performing public tasks to the companies owned by them. The number of companies owned by municipalities proves it clearly because there are 1701 companies of this kind in Hungary, 1641 companies in Ukrainian, 426 firms in Czech Republic and 237 such firms in Romania. If we examine how equity ratio developed in the enterprises of the countries in question, we can not see a significant difference, only liquidity ratio is better in Romania and in Czech Republic. As far as Hungary and Ukraine are concerned, we can say that 47-51% of the companies owned by municipalities had weak liquidity in the reviewed period which endangers sustainable business management. In the reviewed 3 years, we did not see a significant difference in the equity ratio of the companies of the four countries.

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## FUNDAMENTALS OF THE CORPORATE HEALTH MANAGEMENT

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In the current economic conditions it becomes quite evident that the problem of personnel efficiency and quality of performance in carrying out assigned responsibilities is gaining in importance. To date, most successful top managers have already realized that the ability to attract, develop, retain and use the full potential of employees is the determining factor for the success of any organization. In the process of human resource management, each manager comes to the understanding that the effectiveness of the work of the personnel depends not only on a correctly constructed system of motivation and rational organization of work of the employees and effective leadership, but also on the capabilities of each employee, in particular, his or her state of health. In this regard, the corporate health management, including a system of management activities aimed at ensuring and maintaining the physical and psychological health of personnel, is becoming especially popular.

It should be noted that in today's unstable and rapidly changing business environment, the management representatives of many domestic enterprises and organizations does not pay enough attention to the issues of health management of their subordinates. However, many years of experience of foreign and successful domestic companies proves that due to the formation of an effective system for managing the health of personnel, the top-level management representatives of modern enterprises can expect the obtaining of a positive economic effect, not only in the long-term period, but also in the short term, too. The health of employees is an area that equally interests both management team members and ordinary employees, so integration of efforts gives a pronounced effect.

The health management system of the modern enterprise can be described as follows (See Figure 1).

In general, the most important results of the successful implementation of corporate health management programs can be the following ones: the improvement of the behavior of employees in the workplace of an organization; decrease in the risk of morbidity of personnel; productivity growth; reduction of medical expenses of the enterprise; decrease in the number of requests for medical help to the doctors; decrease in the number of days of incapacity for work of the employees; high return on investment in employee health.

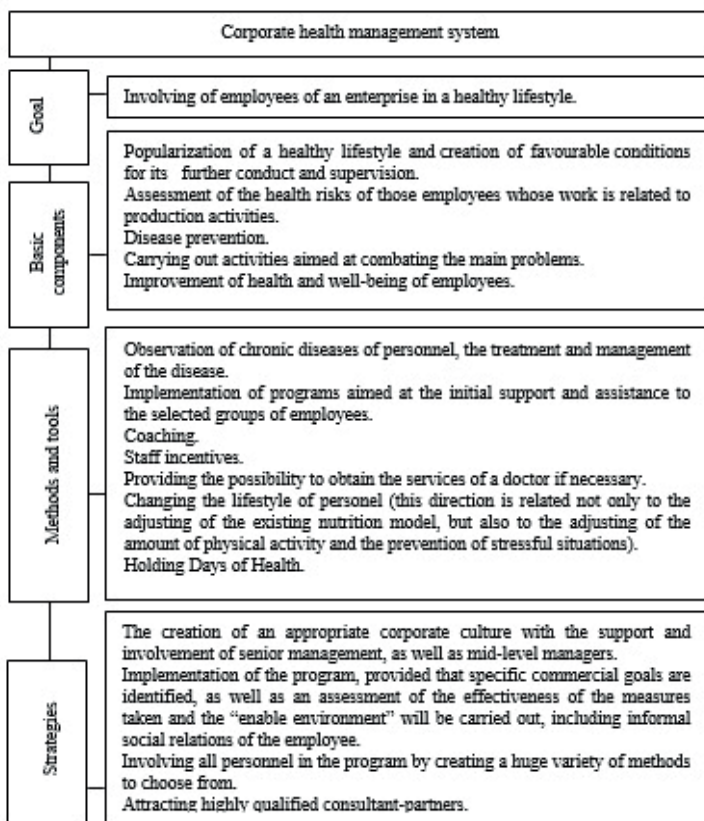


Fig. 1. Corporate health management system in an organization

During this study it was revealed that in the field of the revenue management the main results of an effectively functioning corporate health management system can be determined in the various ways. These are as follows: an increase in incomes due to the growth of labor productivity, work capacity and efficiency of employees of the enterprise; an increase in revenues by attracting more qualified personnel, as well as lower-qualified staff turnover and the decrease in the costs for professional adaptation of employees; an increase in incomes due to reducing stressful and conflict situations in the work collective, as well as an increase of the stress-resistance of employees and their loyalty to top-level management members of the enterprise; an increase in net profit of the enterprise, along with certain cost reduction strategies and the revenue growth; an increase in revenues due to improving the strong corporate image.



Table 1

**Proposed topics of trainings (seminars and on-line courses)  
for employees of a modern enterprise**

The topic name	Brief characteristics of the topics
1	2
Basics and practice of occupational health	The basic rules that employees must adhere to in order to work with greater efficiency and less fatigue
Primary practice of proper nutrition	Specific instructions about what exactly, how and when a person should eat to avoid not only chronic diseases, but also to increase the amount of energy and performance during the working day.
The fundamentals of preventing occupational diseases	Specific rules on how to avoid occupational chronic diseases, which are related to the relevant activity of employees.
Fundamentals of epidemiological safety	Clear instructions on how to behave during outbreaks of infectious diseases in order to avoid illness and reduce the number of days of temporary disability.
Basics and practice of preventive healthcare	Useful tips on how to apply the measures during the calendar year to reduce the risk of infectious and chronic diseases.
Fitness basics	Recommendations for those physical exercises and physical activities that should be performed to reduce morbidity and to increase the amount of energy, efficiency and performance.
Fundamentals and practice of psychological health in the work collective	The rules on how to deal with stress during the working day to save the personal energy and efficiency, and how to interact with the collective members in a certain way that does not affect the total effectiveness of work.
The practice of combating tobacco and alcoholism	Useful tips on how to overcome the harmful habits in order to reduce the total number of "smoke breaks" during the working day, as well as to reduce the days of incapacity for work because of the harmful effects of alcohol.

In the context of this study, we can argue that the management of corporate health basically involves training staff to take care of their own health, while forming a cohesive team with a high level of self-management.

In our opinion, managing health programs and projects at a certain enterprise should be different for the managers of all levels of management and their subordinates, because of the different specificities of employment.

That is why depending on the approved structure, the educational program for staff development may include theoretical and practical classes in one or more subjects (See Table 1).

In order to manage personnel effectively, the manager must first learn how to manage himself. At the same time, the life of a modern manager is accompanied by constant stressful situations that arise against the backdrop of physical, psycho-emotional and intellectual burden. Irregular nutrition, irregular working day and a

sedentary lifestyle create the ground for diseases and their progression to chronic conditions.

The educational program of corporate health management, developed especially for senior managers of any modern organization, enables not only to improve their physical health, but also contributes to creating conditions for overcoming their own weaknesses and ultimately brings great pleasure, thereby contributing to the strengthening of psychological health. Training programs for top managers and middle-level managers can have the following focus areas (See Table 2).

*Table 2*

**Proposed topics of trainings (seminars and on-line courses)  
for top-managers and middle-level managers of a modern organization**

The topic name	Brief characteristics of the topics
Individual coaching for a healthy lifestyle	Specific rules on how managers can save youth and energy, increase efficiency and productivity of their work for many years through the use of integrated healthy lifestyle techniques.
VIP on food intake	On the basis of the results of a special biochemical analysis, it is possible to obtain specific recommendations for adjusting nutrition to prevent chronic diseases, to increase energy, to reduce fatigue, and, finally, to increase a personal efficiency.
Stress reduction	Useful tips on how to get rid of mental and physical overstrain during the working day and after it is over, and also on how to work without any stresses or strains put on them.
Training in physiological time management	Within the framework of this unique program, the fundamentals of time management are adapted to the individual characteristics of the organisms of the persons, who are the heads of the organizations. At the same time the most effective and productive scheme of working activity can be proposed if needed.
Basics and practice of a healthy restoring sleep	How to restore strength and energy per one night only for the next full-time working day, as well as for the right management decision-making and increasing personal effectiveness.
Relaxation techniques	The given topic is related to the practical mastering of relaxation techniques, error analysis, training and correction processes.

In addition to the theoretical and practical training of managers for a healthy lifestyle, sport plays an important role in health management. Sports activities for a manager are not only rivalry and overcoming his own boundaries. Equally important is the influence of sport on the development of communicative competences. In many foreign companies, the time employees spend together on treadmills or cycling machines is much more popular than the traditional meetings with a cup of coffee and a cigarette. Meeting on the golf course is an ideal opportunity to learn about potential partners, clients and colleagues. This game contributes to concentration of attention and at the same time relaxes and relieves tension.

In the world of sports and business there is a common denominator – a model of

leadership. Work with subordinates can be compared to work in a sports team. The role of the coach in the team corresponds to the role of manager in the company. Such a model of management suggests the need to reduce the distance between the boss and the workers and establish a deeper relationship, which can develop in various ways.

This in turn is possible only if there are qualities of the real leader (See Figure 2). Being a leader means being yourself and thoroughly knowing yourself. As a rule, people want to follow a strong personality, not an executor of a role, an official representative of any organization or a bureaucrat.

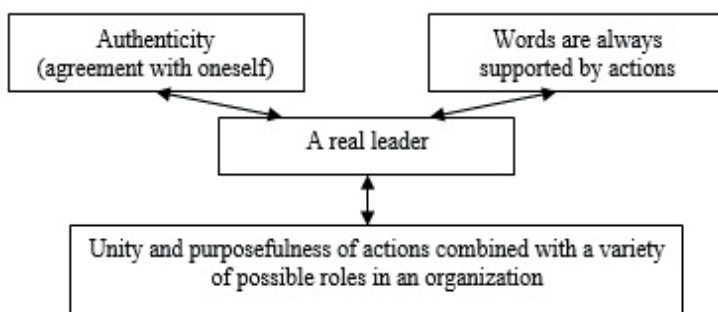


Fig. 2. Personal qualities of a real leader in an organization

In this context, we consider it necessary to emphasize that the qualities of a real leader are first, innate, and secondly, educated and developed, through daily work on themselves and an effective self-management. The development of leadership qualities and self-improvement is greatly facilitated in the presence of strong physical and, especially, psychological health of a person. In a modern, unstable external environment, there is often an increase in the instability of the mental performance of the manager, which affects not only his / her mental and intellectual abilities, but also his general physical condition and behaviour.

In medicine, in particular in the prescriptions for the use of certain sedatives, there is a “manager syndrome”. So the principle of adaptability, which is appropriate to apply is an important aspect of the development of managerial potential, taking into account the main achievements of management psychology [1, p. 103].

The term “manager syndrome” has been used by doctors since 1984, referring to such manifestations as angina pectoris, increased anxiety, overweight and problems in family relationships, which are considered to be typical for managers of all levels of management in the modern organizations [2, p. 121]. Scientists claim that half of all causes of coronary heart disease are related to the psychological risk factors, which are determined by the way of life and the emotional response of the patient to different stressful situations [3, p. 34].

M. Friedman and R. Rozeman in their scientific works emphasized the need to distinguish between two possible types of human behavior. The first one, which is called as “type A”, is characterized by impatience, haste, workaholism, perfectionism and rivalry, while the second type, also known as the type “B”, is characterized by life satisfaction and stress-resistance of a person. When considering the results of analysis of various issues of health formation for future managers, A.N. Bolshakova came to the conclusion that a large number of students demonstrate either a developed behavior of type “A”, or a tendency to develop it in the future (a mixed type of “A-B”) during the period of study in institutions of higher education [3, p. 35]. In addition, according to N.V. Ivanenko, representatives of game kinds of sports (such as volleyball, table tennis, basketball and football) always demonstrate their sociability, goodwill, openness to communication, and collectivism to the society. The development of perseverance, patience, observation and purposefulness are the main characteristics for athletes, single tennis players and swimmers. Students who are engaged in general physical training, sports aerobics, shaping, a high level of self-organization, discipline, independence and critical thinking prevails [2, p. 122].

The aforementioned facts provide the basis for the need to promote healthy lifestyles, emphasizing the attention of future managers, even during their studies at the university, to the exceptional importance of good physical fitness for both personal and professional development. After graduation from any higher education establishment they will need to further develop and implement their own programs of corporate health management.

All the tools used to support the manager’s culture can be divided into traditional (gym, swimming, walrus) and modern ones. Among modern tools for supporting the culture of the manager, it is necessary to highlight, first of all, the smart watches, which are popular among the young people. Working more often as an addition to an ordinary smartphone, smart watches can be used as a heart rate monitor, pedometer, and even a tonometer. Due to these useful options, smart watches have a controlling function, which is important in the context of self-management skills development.

The most popular gadget that can be used as a tool for developing the physical culture of a manager is a smartphone. With its help it is convenient not only to successfully solve various professional tasks, but also to maintain a healthy lifestyle as a whole. For example, it is possible to set alerts about the need for exercise, eating or medication routine. Among the mobile applications that can be used to maintain a good psychophysiological condition, it is necessary to pay special attention to those that can visualize fitness classes and help to make an optimal diet. Downloading and listening to relaxing music can reduce internal tension, distract from problems, calm down and get inspiration for new professional achievements.

The thing that yesterday seemed to all of us a real fantasy only, today is the newest technical device, and tomorrow it will certainly become a significant element of a person’s daily life. Thus, for example, Israeli scientists at the “Rambam Medical Center” have developed an electrostimulation device that can be placed

on the arm and hidden under clothing. The device, which is known as the “Nerivio Migra”, contains a computer chip, battery and rubber electrodes that are attached to the shoulder. The system provides several modes of electrostimulation, which the patient can adjust by using a mobile application. A special popularity among professional sportsmen and sports fans is gradually acquired by so-called “smart” clothing, capable of measuring the heart rhythm of a person. In addition to this, it is possible to receive information about whether the wearer of this clothing is suffering from heartbeat delay. Also, if it is necessary to provide medical assistance to a person, the mobile application can send some messages about this to other persons (relatives, the doctor, the personal trainer etc.).

In the modern world companies are implementing disease prevention programs. Many business entities not only successfully organize and manage various medical examinations and psychological seminars, but also create the amazing recreation and nutrition areas. It turns quite slowly, but this practice is introduced in Ukrainian enterprises too. Thus, in order to occupy leading positions in the team, to be an authority and an example for imitation by subordinates, to manage more and to cope with psycho-emotional stresses, any successful manager of the modern enterprise needs to maintain a good physical shape. At the same time, we should use a wide range of traditional tools and not abandon the latest information technologies, which in recent decades are firmly rooted in our personal and professional life.

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## INTELLECTUAL CAPITAL MANAGEMENT STRATEGY IN ORGANIZATION

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At the present stage of economic development, the success of a company depends on the level of its intellectual capacity, which is determined by the efficient usage of intellectual capital as one of the main resources of modern enterprises. In addition, the development and intake of intellectual capital are inextricably linked to the information flows in the process of information exchange among the various elements of business management systems, as well as to the interaction of the company with its environment.

The specific feature of intellectual capital management is manifested in the fact that it is a product of intellectual activity and creative efforts. Information and knowledge are in its core. Knowledge can be defined as the information stock obtained in the course of training, research and by other means; this is in privacy of a person, company, and society as a whole. Intellectual capital can be expressed in monetary terms by determining the cost of intangible assets of the company, its product innovation. The ability to form the intellectual capital defines the intellectual potential of the company, and the knowledge appears as a result of the intellectual potential.

It has already been proved that the intellectual resource is the basis of socio-economic development at the macro level and enterprise levels. In the process of its formation, public information sources are used, and as a result of creative intellectual work an innovative resource is created that promotes the innovative state development [1; 2].

In a wider sense, intellectual resource is a resource of development, that is, both real and potential ability of a country to support the intellectual and innovation level in all spheres of activity - science, education, politics, business, and culture. Success and progressive development will always be the countries where the optimum proportions between creative abilities of the person and other resources will be ensured [3].

It is known that the concept of «intellectual resource» arose from the observation of the activities of high-tech companies (knowledge companies) operating in highly developed countries. Professor at the University of Berkeley (UK) David Teece and Swedish scholars Karl Eric Sveiby and Anders Risling became the founders of the research. The first started the study of profiting from innovations (Profitingfrom

Tecnological Innovation), and the second one - management knowledge [4].

The intellectual capital of the company is considered as a set of knowledge of human capital and its own intellectual information (knowledge) of the company, which can be converted into cost based on socio-economic results to participate in creating unique competitive advantages of the company [5, p.270].

*Table 1*

### **Approaches to Intellectual Capital Structure**

Author	Classification
Skandia (1995)	Human capital. Structural capital. Customer capital. Organizational capital. Process capital. Innovation capital. Intellectual property. Intangible assets
Edvinsson, Malone (1997)	Human capital. Structural capital. Customer capital
Bontis (1998)	Human capital. Structural capital. Relational capital
Stewart (1997)	Human capital. Structural capital. Customer capital
Saint-Onge (1996)	Human capital. Structural capital. Relational capital
Sveiby (1997)	Personnel competences. Internal structure. External structure
Van Buren (1999)	Human capital. Innovative capital. Process capital. Customer capital
Roos et al. (1998)	Human capital. Structural capital. Relational capital
O'Donnell and O'Regan (2000)	People. Internal structure. External structure

*Source: [5, p.273; 6; 7, p.266; 8;]*

Today's best strategic thinkers are those who are strategically "bilingual" – able to think in terms of strategies that ensure the optimal, effective leveraging of the traditional tangible assets, and simultaneously the highly differentiated strategic deployment of the new intangible intellectual capital assets.

Progressive managers consider intellectual capital management and knowledge management to be vital for sustained viability. Recent practices support this notion and have provided important approaches and tools.

Intellectual capital focuses on renewing and maximizing the enterprise-wide value of intellectual assets. Knowledge management supports intellectual capital management by focusing on detailed systematic, explicit processes and overlap and synergy between. Intellectual capital management and knowledge management, and advanced enterprises pursue deliberate strategies to coordinate and exploit them. They create balanced intellectual capital portfolios that they implement with knowledge management approaches and tools. Progressive managers have recognized that the enterprise's viability depends directly on [9, p. 399]:

1. the competitive quality of its knowledge-based intellectual-capital and assets; and
2. the successful application of these assets in its operational activities to realize

their value to fulfill the enterprise's objectives. There is considerable overlap in the scope of intellectual capital management and knowledge management.

There are, however, major differences between their foci and perspectives, and this is not an artificial distinction. Intellectual capital management (ICM) focuses on building and governing intellectual assets from strategic and enterprise governance perspectives with some focus on tactics. Its function is to take overall care of the enterprise's intellectual capital.

Knowledge management (KM) has tactical and operational perspectives. KM is more detailed and focuses on facilitating and managing knowledge-related activities such as creation, capture, transformation and use. Its function is to plan, implement, operate and monitor all the knowledge-related activities and programs required for effective intellectual capital management. In particular, the two initiatives complement each other in addition to having important overlaps. As discussed later, they need to be closely integrated to prevent conflicts and to maximize effectiveness. Now let consider the process of ICM strategy selection (fig. 1).

The first step is Monitoring of the marketing environment. To spot trends and other signals that conditions may be in flux, marketers must continually monitor the environment in which their companies operate.

Next step – determination of the key priorities of company – means what goals have to be achieved. These goals might have already been strategically planned by CEOs (Chief Executive Officers).

After it, our key issues of ICM should be determined. It can be increase in profits, knowledge development, design of innovations, the formation of a positive image, increase market share, access to new markets, and so on.

According to these tasks, strategy selection occurs, taking into account the existing level of intellectual capital. Then we need to estimate IC assets. This may be accomplished by using different methods, for example, K.E. Sveiby's approach that distinguishes 25 methods, subdivided into four categories. These methods include qualitative and quantitative assessment [11].

It is important on this stage to identify unrealized opportunities, videlicet intellectual potential. If the company has it, it should be realized in strategies.

Strategy implementation is phased process. It is necessary to adopt the system used for the intellectual capital management of the organization on this stage. This system defines: what departments will be responsible for what, and what information systems are needed to monitor the implementation of the strategy, what retraining of employees will be required, etc.



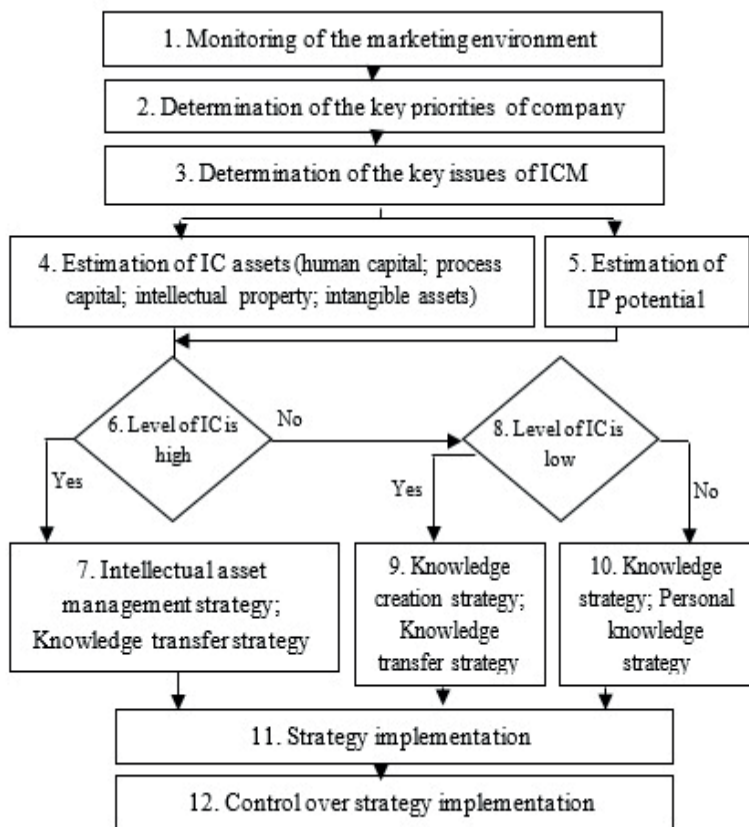


Fig. 1. The algorithm of selection of intellectual capital management strategy

And the last one, but not the least, is the control and strategy revision. The main objectives of ICM control as follows: definition of what parameters and how to check; assessment of the state of the controlled object in accordance with accepted standards, regulations or other benchmarks; elucidation of the causes of deviations, if any are be opened as a result of the assessment; implementing adjustments, if it is necessary and possible. By managing intellectual assets and knowledge appropriately, the employees, and the enterprise as a whole, will be in position to act intelligently-the basic requirements for sustained competitiveness, success, and viability.

Karl Wiig highlighted five basic knowledge-centered strategies (table 2):

Table 2

### Types of intellectual capital management strategies

№	Strategy	Description
1	Knowledge strategy	as business strategy emphasizes knowledge creation, capture, organization, renewal, sharing, and use in all plans, operations, and detailed activities to provide the best possible knowledge available at each point of action.
2	Intellectual asset management strategy	emphasizes enterprise-level management of specific intellectual assets such as patents, technologies, operational and management practices, customer relations, organizational arrangements, and other structural knowledge assets. Management's task is to renew, organize, evaluate, protect and increase the availability and marketing of these assets.
3	Personal knowledge strategy	emphasizes personal responsibility for knowledge-related investments, innovations and competitiveness, renewal, effective use and availability to others of knowledge assets within each employee's area of accountability. The objectives are continually to build knowledge and to apply the most competitive knowledge to the enterprise's work.
4	Knowledge creation strategy	emphasizes organizational learning, basic and applied research and development, and motivation of employees to innovate and capture lessons learned to obtain new and better knowledge, which will provide improved competitiveness.
5	Knowledge transfer strategy	emphasizes systematic approaches to transfer (i.e. obtain, organize, restructure, warehouse or memorize, repackage for deployment and distribute) knowledge to points of action where it will be used to perform work. This strategy includes knowledge sharing and adopting best practices.

*Source: [9, p. 400]*

To pursue these strategies, organizations undertake specific programs and activities, provide supporting infrastructure capabilities, and sometimes create incentives to motivate individual employees, teams, and even departments and business units to cooperate with the new objectives.

A central pillar in the strategic management of human capital is the alignment of human capital strategies with agency mission, goals, and objectives through analysis, planning, investment, and management of human capital programs. Human capital planning is the method by which an agency designs a coherent framework of human capital policies, programs, and practices to achieve a shared vision integrated with the agency's strategic plan. Implementation of the strategic human capital plan is a key step in an agency's progress to build a highly effective, performance-based organization by recruiting, acquiring, motivating, and rewarding a high-performing, top quality workforce. The plan becomes the roadmap for continuous improvement and the framework for transforming the culture and operations of the agency.

Although the structure, content, and format of strategic human capital plans will vary by agency, there are certain common elements that should be included in a strategic human capital plan.

The following are five essential components of these strategies.

Table 3

**Essential components of intellectual capital management strategies**

No	Component	Component description
1	Clarity in Human Capital Goals	It is critical to understand the gap between an organization's current state and its desired state. This can help to develop human capital goals that would not only increase employees' overall efficiency, but also make them feel more attached on a closer level to the organization. Some examples of human capital goals include retaining dedicated and hardworking employees, continuously develop skills of the workforce, developing realistic induction programs for new hires, and only hiring the very best talent in the pool.
2	Clarity in Direction	This important component involves understanding an organization from the inside out. To do this, companies must collect data from employees, customers, and stakeholders to understand their expectations and needs. Discussing these issues will help define the entire vision of a company and its team. An effective analysis may involve analyzing current employees' as well as where they see themselves and the company two years down the road. This type of analysis can help organizations pinpoint any flaws or gaps in the system.
3	An Accountability System	No plan or process is successful until and unless it is managed well. It is critical to keep track of progress. An accountability system involves measuring the failure and success of an implemented plan. It also helps organizations to analyze the loopholes in the plan, if applicable, as well as ways to rectify the same.
4	A Foolproof Implementation Plan	An implementation plan includes the steps and actions required to implement human capital strategies. Successful implementation plans include allocating a responsible resource, allocating budgets, and setting a deadline or time frame for implementing the human capital plans. As is the case throughout each component of an human capital management plan, clarity is key. Create an implementation plan that clearly demonstrates the strategy and goal.
5	Strategies and Policies to Accomplish Objectives and Goals	Once an organization has set objectives and goals, it can design policies and strategies to achieve them. Human resource professionals must design long-term plans to ensure their employees are happy with their jobs. Satisfied employees are more likely to deliver their best, thus increasing the likelihood of a success.

Source: [10]

Human capital planning helps a company to design human capital policies, programs, and strategies to increase employee efficiency and help them to accomplish the already-defined objectives and goals of the organization. Implementation of the

human capital management plan helps to ensure that human resources professionals are hiring the right candidates, training them in the most effective way possible, managing them as employees, upgrading their skills when necessary, and retaining them as employees [11].

So, Intellectual capital, and knowledge are the most important assets of most enterprises – and managers are starting to realize it. These assets represent the enterprise's future potential. Intellectual capital elements appear in many forms. Consequently, there are numerous approaches to building and embedding these assets for further use and to capitalize on their value for the benefit of the enterprise. In all these situations, however, it is crucial to ascertain that the assets are used as intended-and particularly that they do not become 'dead assets'. In most instances, ascertaining sustained renewal and profitable use requires implementing supportive infrastructure capabilities and very importantly, targeted motivators and incentives. Only when these capabilities are in place will the enterprise capitalize effectively on its knowledge resources. Stimulation of knowledge economy development requires a special state approach. The algorithm of selection of intellectual capital management strategy can help CEOs to choose the optimal strategy and effectively leverage their intellectual capital. Further areas of research are the mechanisms of reproduction of intellectual capital.

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## **THE ROLE OF QUALITY OF ADMINISTRATIVE SERVICES IN THE MODERN HIGHER EDUCATION OF UKRAINE**

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Higher educational institutions enter the market of educational services with their specific product – an educational product. If the educational product in the form of educational goods is clear, this is the educational material (textbooks, manuals, monographs, video discs, etc.) that have typical characteristics of the ordinary product, then how is the educational product offered in the form of knowledge, skills, experience students? This needs explanation due to the presence of important features.

Educational product in the form of knowledge, skills, experience is transmitted in the learning process by way of providing services (lectures, courses, seminars, events). Therefore, it should be borne in mind that the services, according to F. Kotler, are characterized by four characteristic features: insensitivity, inseparability from the source, inconsistency of quality, non-storage [1].

With regard to educational services, these four characteristics are explained in the scientific literature as follows:

- services can not be received by any perception channel until the moment

of purchase. To persuade a customer to purchase services, manufacturers seek to formalize the most important parameters for the buyer services and submit them as clearly as possible. Educational plans and programs are used in education; information on the methods, forms and conditions of service provision; certificates, licenses, diplomas;

- the service is inseparable from its source, its implementation is possible only in the presence of producers (teachers), providing them. Any change of teacher can change the process and the result of providing an educational service, and, consequently, change the demand for services. The peculiarity of educational services is that the process of their consumption coincides with the process of their provision. In addition, the very technology of providing educational services involves active interaction with their consumer-student;

- the quality of services depends on their producers, as well as on the time and place of their provision. This is primarily due to their inseparability from actors, as well as the impossibility and inadvertentness of setting strict standards for the processes and results of service delivery. The lack of quality of educational services has one more reason: the difference between consumers, that is, students;

- the service can not be stored for further sale or use. For educational services, first of all, this means the inability to prepare services in advance and store them as a material product in anticipation of an increase in demand.

The content of the educational product has a significant impact on the entire educational process, all its stages and all the processes associated with its activities: preparatory, creative, organizational, controlling, social, economic and educational.

The genesis of the educational product goes through several stages. Based on the division proposed in [2] we identified the following stages of creating an educational product:

The first stage - preparatory: definition of the needs of the labor market, society; choice of social partners; development of a strategic and tactical plan of action.

The second stage - at this stage, most of the educational services that lead to the creation of an educational product are provided.

The third stage is the stage of social verification of product quality:

- quality assurance through state licensing and accreditation of educational programs;

- participation in the ratings of higher education institutions;

- Accounting and analysis of the demand of graduates in the labor market;

- annual analysis of the competition for each specialty as a feedback to the community.

One of the important properties of an educational product is its dependence on technology and the organization of the educational process. The technology includes methodical techniques, means of control, communication as a mechanism of processes that create a favorable or unfavorable environment [1, 2], but the quality of premises, logistical facilities, adjoining territory, sanitary and safety indicators

are also of no less importance.

At this stage, at universities, the requirements for competence, professional skills, ability to study and develop, creative thinking, and ability to work in a team considerably increase, which serves as a guarantee of ensuring the required level of quality of implementation of processes. For the economically developed countries of the world, deep interpenetration of methods of personnel development and quality management systems is characteristic. This is especially true for services, in particular, in higher education.

Classification for analyzing the quality of work with students of the administrative vertical of the university - as a service business can be presented in the following form: Effectiveness is characterized by the quality of acquired skills and knowledge and the possibility of employment after obtaining a diploma.

Timeliness / timeliness is a total indicator of the timeliness and timeliness of the implementation of all operations that one way or another provide the educational process.

The accessibility indicator implies:

- the territorial approximation of the educational institution to the recipients of services (in Ukraine, students prefer to study in cities, although in other countries the university is often away from metropolitan areas);
- availability of transport links, index signs, access roads and parking places for vehicles;
- the possibility of receiving methodological materials, consultations, forms, forms, certificates, etc. via the internet.

The convenience indicator characterizes how interests and needs of recipients of services are taken into account. This indicator includes:

- the possibility of choosing a method of applying for consultation or administrative service to the dean's office or other departments of higher educational institutions (in person, by post, telephone, via the Internet);
- for the maximum number of problems introducing the principle of a «one-stop shop»;
- Establishment of departments of higher educational establishments for student admission schedules taking into account their interests;
- convenient forms of payment for educational services, preferably in the premises of the main building of the university;

Openness - free access to the necessary information related to admission to the university, the registration of all current documents that the student is engaged in during the training period. Information should be placed on convenient benches, sometimes in booklets and on the Internet.

In addition to ease of access to information, openness provides anti-corruption and personal bias of service providers in universities. In addition, it provides:

- availability of information regarding the procedure for providing the service, a list of documents for obtaining it with samples;

- clear information for the consumer about the persons responsible for providing one or another service;
- the possibility of receiving information by phone and e-mail, obtaining qualified advisory services on various issues.

Respect for the person - a polite attitude towards the recipient of educational services at all levels, provides:

- The readiness of the educational institution staff to assist in the preparation of documents;
- observance of the principle of equality of all citizens, employees of all levels of an educational institution should be equally friendly to all recipients of educational services;
- the same tasks and problems of recipients of educational services should be resolved in the same way, in the same time, with the same requirements, etc;
- provision of household amenities in an educational institution.

Professionalism - proper level of qualification of employees of an educational institution.

Fair value - a provider of educational services should not be misled; the value of each educational service must be established on the basis of the size of the actual costs of its provision and the mark-up (net income of the educational institution) in the common sense; it is logical to take into account the time for which the recipient of education will be able to «return» as a salary for this profession the money spent on its acquisition. This also includes the validity of the composition of education, the list of competencies, the correspondence of the curriculum for each specialty to the needs of the recipient of educational services, taking into account the economic situation in a particular country.

Today, in Europe and in the world, the importance of the role of auxiliary staff in higher education institutions is recognized. Thus, according to research [4], students' satisfaction with the quality of university administrative services determines 5.6 and 4.1 percent of their behavioral intentions to go to another university and recommend their university, respectively.

In Australia there is a site for independent anonymous assessment of universities according to various indicators by students [5]. Of course, one can not neglect the fact that any Internet voting can be «broken» by hackers; it is also known as a «winding up» of keynotes or dislikes. Nevertheless, considering these factors, such electronic resources seem to us to be very useful and relatively inexpensive in implementation, so we recommend the introduction of this method of assessing education in Ukraine.

On tabl. 1. We have placed two different ratings from this site, which characterize the availability of support staff and teachers outside the official schedule of classes (during working hours). For staff, the question was: «Is it easy to find university administrative staff and are they useful? (1 = difficult to access and / or not help, 5 = easy access and very useful) «. For the teaching staff: «Are teachers available when



you need them? (1 = rarely available, 5 = easily accessible) «. The number of voting participants is shown in brackets.

*Table 1*

**Comparison of Australian University ratings on the availability  
and usefulness of auxiliary staff and the availability  
of teachers outside the classroom**

<b>Accessibility / utility of auxiliary staff</b>		<b>Faculty availability</b>	
<b>University</b>	<b>Rating</b>	<b>University</b>	<b>Rating</b>
Bond University	4.04(192)	Bond University	4.58(192)
University of Wollongong	3.91(175)	University of Notre Dame	4.30 (63)
Flinders University	3.86 (90)	University of New England	4.26 (135)
University of Ballarat	3.84 (44)	University of Wollongong	4.13 (175)
University of Notre Dame	3.79 (62)	University of Ballarat	4.07 (45)
University of New England	3.77 (134)	Flinders University	3.99 (90)
University of South Australia	3.73 (75)	Australian National University	3.98 (197)
Monash University	3.73 (219)	Swinburne University of Technology	3.97 (227)
Edith Cowan University	3.68(136)	Monash University	3.96(226)
University of Western Australia	3.67 (99)	University of Western Australia	3.95 (102)
Swinburne University of Technology	3.63(227)	University of Sydney	3.92(101)
Southern Cross University	3.61 (83)	University of Melbourne	3.85(165)
Macquarie University	3.61(210)	Murdoch University	3.85(169)
Griffith University	3.61(208)	Deakin University	3.84(218)
University of Technology, Sydney	3.60(182)	University of Canberra	3.83(113)
University of New South Wales	3.60 (178)	Edith Cowan University	3.83 (138)
University of Queensland	3.59(122)	La Trobe University	3.82(243)
Australian National University	3.59 (193)	University of Southern Queensland	3.81 (102)
University of Sydney	3.58(100)	Curtin University of Technology	3.81(124)
University of Southern Queensland	3.57 (102)	University of Adelaide	3.80 (79)
Curtin University of Technology	3.51 (122)	Macquarie University	3.78 (216)
University of Adelaide	3.47 (78)	James Cook University	3.77 (74)
Deakin University	3.47(215)	University of Tasmania	3.76(123)
James Cook University	3.46 (74)	Griffith University	3.75(213)
Murdoch University	3.45 (167)	University of Queensland	3.74 (123)
University of Newcastle	3.44 (111)	University of Technology, Sydney	3.74 (184)

University of Melbourne	3.41(161)	University of the Sunshine Coast	3.70 (73)
La Trobe University	3.37(235)	University of New South Wales	3.66 (180)
Central Queensland University	3.37 (121)	Southern Cross University	3.65 (85)
University of Tasmania	3.36(121)	Australian Catholic University (ACU National)	3.62 (210)
University of Canberra	3.35(112)	University of South Australia	3.61 (76)
Australian Catholic University (ACU National)	3.29 (207)	University of Western Sydney	3.58 (212)
University of Western Sydney	3.27 (210)	University of Newcastle	3.54 (111)
University of the Sunshine Coast	3.24 (75)	Central Queensland University	3.54 (121)
Queensland University of Technology	3.04 (132)	Victoria University	3.34 (112)
RMIT University	3.03(232)	RMIT University	3.33(237)
Victoria University	2.97 (110)	Charles Darwin Univ	3.25 (53)
Charles Darwin University	2.79 (52)	Queensland University of Technology	3.18 (133)
Charles Sturt University	2.73 (264)	Charles Sturt University	2.90 (269)
Open Universities Australia (OUA)	2.18 (11)	Open Universities Australia (OUA)	1.83 (12)

It is possible to notice that universities occupy different places in the ranking according to these indicators, but the assessment of the activities of the auxiliary and teaching staff is almost the same: according to our estimates, the average assessment of the availability / usefulness of staff is 3.46, and the average assessment of the availability of teaching staff is 3.72.

In our opinion, it is better to divide the indicators of availability and utility of staff by interviewing because it should be revealed why it is considered less accessible, although it does not visit the couple, that is, it is in the workplace all day. It is possible that the availability of staff is higher than teachers, and in particular, the usefulness determines the rating result.

It should be noted that, in a broad sense, an excellent university is not just that having the characteristics of an excellent service provider. For example, the excellent provision of environmental education does not guarantee that the streets will be clean if citizens continue to throw garbage on the streets. It may be necessary to raise appropriate civic behavior at home for children in order to create a clean environment for citizens. In other words, the improvement of quality also requires responsible civil society. As a result, qualitative indicators should be directed not only to assess the quality of services provided by individual organizations, but also to the service system and overall quality of life in a particular region. In addition, university administration should not only increase student satisfaction with

education, but also increase trust in higher education through transparent processes, accountability and feedback.

To ensure the quality of education, clear, coordinated work of all departments of the educational institution and strict compliance with discipline by students, teachers and all employees is necessary.

The quality of the administrative verticals of the university has an impact on the choice of university students and affects the reputation of the university as a whole. The indicators of the quality of the work of the auxiliary departments of the university should be studied in the context of the development of representations about administrative services in general.

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# **PHILOSOPHICAL AND EDUCATIONAL FOUNDATIONS OF THE PERSONALITY DEVELOPMENT OF THE HIGHER SCHOOL TEACHER IN THE 21st CENTURY**

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The article deals with the theoretical and culturological foundations of the personality development of the higher school teacher in the 21st century. The personality of the scholar-teacher is formed depending on the historical types of societies – closed or open, in which the atmosphere of creativity, democracy and free will dominates. The personality of a modern educator is characterized by the embodiment of professionalism, the talent of a researcher and the bearer of spiritual and cultural historical traditions.

Relevance of the research. The processes of reforming of the higher education in Ukraine are determined by the in-depth study and practical application of the latest advanced pedagogical technologies, deep understanding of the historical and culturological traditions of the formation of a national higher school and solving contemporary problems of integration into the European educational space. The most important component of the educational process is the study of the formation of the teacher's personality as a mentor of a youth and of a scientist-researcher. This is a task of the modern philosophy of education, which is capable to develop the ideological and methodological support of the model of the higher school teacher in the 21st century.

It is the philosophy of education that has to determine theoretical and culturological principles, development trends and the goal, in its broadest sense of a modern education, the essence of the free creative activity of a higher school teacher, which combines professional competence, talent of a scholar and a high culture of communication. The formation of a teacher's personality is largely determined by the level of openness and the degree of democracy development in society. Personality development of the higher school teacher depends on the general educational goal, scientific and theoretical foundations, the development of spiritual culture, which directly influences the formation of a holistic worldview.

The state of theme research. From the historical view of the formation of the philosophy of education, it is important to analyze the classical model of the higher education development and the place in it of the creative personality of a teacher with

a theoretical and cultural expression in the philosophy of I. Kant, I. Fichte, G. Hegel and V. von Humboldt. The classical idea of the university determined the principles of personality development throughout the 19th century. But in the conditions of growth of technics, technology and globalization processes of the 20th century the approach to using tools and the ultimate goal of the higher education radically changes. The principles of constant creativity, education throughout the human life and the continuous process of professional self-improvement are confirmed. This problem is the subject of sharp discussions of philosophers, sociologists, psychologists, and teachers, in particular, reflected in the works of eminent thinkers of the 20th century J. Ortega y Gasset, K. Jaspers, H.-G. Gadamer, K. Popper, J. Habermas, J. Derrida. In the modern Ukrainian philosophy of education, the philosophical and methodological aspects of the formation of a higher school teacher are the subject of the researches by Ukrainian scientists – V. Andrushchenko, M. Zubrytska, S. Klepko, M. Kul'taeva, V. Lutai, M. Mikhalchenko.

**The purpose of the study** is to determine the indirect influence of philosophical and culturological foundations on the development of a holistic personality model of the higher school teacher in the 21st century, which combines the talent of the integrator of scientific knowledge and the conductor of the ancient traditions of the national and world educational culture.

The idea of subordination of the educational system to the tasks of constant development of a personality is the main philosophical reforming setting of the modern higher education system. This will be possible when providing comprehensive human development is coordinated with the practical achievements of modern education, with training of specialists for creative activity based on the principles of freedom and creativity. The objective development of the reform in a modern education of Ukraine calls for a radical revision of the ideological and methodological principles of the substantiation of educational activity, placing it on the forefront of the personality development.

The processes of higher education reforming can not be temporary, fast-moving, but are carried out on an ongoing basis. Reasons for reform are more likely to apply not only to the content of educational activity, but above all to the totality of social relations of the corresponding type of development of social reality. In the historical context, the reforms in education occur almost in different cultural and political eras, almost in every century, depending on the adoption of common purpose, idea, construct of university education.

Reform is always a creation of a new order. As it was argued in the 30-ies of 20th century by the Spanish thinker J. Ortega y Gasset, the need for reform arises for two reasons: «either because of a violation in the direct sense of the word, that is, through isolated cases of misuse of good rules, or because abusive occasions occur so frequently or permanently, and become so ordinary or approved that they can not even be called misuses» [4, 68]. Yes, it is against the latter that the reforms should be directed. But the process of reform in higher education will be sufficient itself, it

will find practical expression and universal approval in the case of a firm definition of the mission, the idea of a high school institution – University.

Significant contribution to the process of reforming of the higher education in Western Europe is an affirmation of the idea of Building 'a' (formation), or the development of a harmonious personality as a learning goal in the creative work and practice of the founder of the University of Berlin V. von Humboldt at the beginning of the 19th century. The idea of higher education was based on the unity of the educational principles, scientific research and the achievements of national culture.

V. von Humboldt imagined the university as a place where both the professor and the student dedicate themselves to science; an important factor of constant personal development is an independent, creative process of communication. The main task of higher educational establishments is a rational combination of «objective science with subjective education» and the implementation of the principles of solitude and freedom as the general basis for the development of personalities that can influence the fate of the country.

D. Newman, a theoretician of English higher education, believes that it is precisely such an institution as the university that it is «the place of communication, the circulation of thought across the whole country», and the principle of mutual learning is «one of the most powerful, continuous processes of mankind», especially when it has a predetermined purpose [3, 37]. D. Newman proves the need for the educational process of such an important factor as the culture of open communication between a teacher and a student. «No book will pass the delicate nuances of your specialty as quickly and confidently as a living dialogue will make through the eyes, look, emphasis, manner» [3, 39]. The ancient Athens gave the student more philosophical knowledge and culture precisely via communication, and not via reading and mastering wisdom from books.

Scientific authority was of great importance in the education in Ancient Greece, for example, the presence of Plato. «Even if the student didn't see anything, except Plato, who breathed and moved, didn't attend any lecture, he would still had received some measure of education and had something to tell grandchildren» [3, 61]. Genius and talent were the main criteria for selecting teachers in the Platonic Academy. The professor is «the home of wisdom, the light of the world, the messenger of faith, the alma mater of the young generation» [3, 44]. D. Newman further states that university education is characterized with a comprehensive study of truth, «a powerful intellectual diversity», the rule of intellect exclusively.

The revolutionary step in the entire history of educational activity was the «ingenious turn», begun by the French scientist J.-J. Rousseau and the Swiss teacher J. Pestalozzi. As it is known in the studying process – and generally in education – there are three components: the content of learning, or knowledge; the one who teaches, or a teacher; and the one who studies, or a student. The novation of J.-J. Rousseau and his followers were to move the emphasis of pedagogical attention in the direction from the knowledge itself and the teacher to the student and in

determining that a student is the only one that can point us the way to the realization of the educational goal.

The principles of openness in higher education historically combine professionalism, the ability to research and the culture of inner spiritual communication. Culture, according to J. Ortega y Gasset, should save mankind from a life catastrophe, «it allows a person to live in such a way that his/her life wouldn't become a senseless tragedy or he/she wouldn't grow unsociable» [4, 76]. In modern conditions, the catastrophic nature of the European situation in education is that «ordinary Englishman, ordinary Frenchman, ordinary German are ignorant people, they don't have a vital system of conceptions, relevant to time, about the world and man». Such an average character is «a new barbarian, retarded from the point of view of his era, archaic and primitive». But the «new barbarian» is, first and foremost, a professional, although «more ignorant» [4, 76].

Paradox is the fact that in the 21st century graduates of universities, having a lot of knowledge on only one subject, have no idea of the rest of scientific knowledge. Such result, as clarified by the Spanish philosopher, is the result of fragmentation, deconstructivism, which increasingly characterizes the «European man». According to J. Ortega y Gasset, it is necessary to stop the processes of differentiation and shredding of a scientific work, to cultivate and to form «integrative talents» – this is the fate of the progressive development of scientific knowledge.

When selecting the teaching staff of the institution of higher education, the talent of integrator and teaching talent will be influential above all things. The systematic unity of professional studies and cultural-oriented disciplines should prevail in the structure of the curricula for the training of specialists. The Spanish thinker proves the need for a thorough development of the methodology of higher education, which should complement the professional specialization of training specialists with «integral culture». In the presence of hypertrophy of the means of study, the atrophy of a given goal of university education remains. Therefore, according to J. Ortega y Gasset, «it is necessary to establish the science of education with its methods and guidelines» [4, 86].

Rather interesting philosophical view of the philosopher about the duration of scientific discoveries, their practical application and their perception by the broad educational society is the hypothetical statement that the best professors would live in the atmosphere of fifteen or twenty years ago. «Tragic backwardness» is inherent in anyone who doesn't seek self-improvement, doesn't create his or her own beliefs, and doesn't try to be original. The first generation, «radiating its spirit», creates meaningful values, leading ideas. Those who succeed this creative heritage have to wait until certain completeness and testing of the results of the scientific search are carried out. At the next stage of scientific development, «the forces of the predecessors will begin to weaken», and the new generation will «make its reform». Every generation, says the thinker, for fifteen years «fights for the implementation of their principles in life and for fifteen years they are valid» [4, 71]. Thus, the

process of forming of the integral personality has an infinite character, as well as the process of self-improvement of the mentor, the teacher, the manager of higher education.

The fall of university studies begins when it becomes mandatory to attend certain lectures, practical classes and general training regulations. «At this destructive path for the University together with freedom of studying, the life of the spirit is suppressed» – the creator of the philosophy of existentialism in the 20th century K. Jaspers warned. Curricula should correspond to «proposals that don't restrict the free progress of the student, but help with clarifications and the opportunity of choice» [7, 125].

The truth in philosophy has a distinct personal character, and scientific activity is always open and incomplete. Studying at the university can not be dogmatized, defined by the general scheme, it always has an individual form. The lesson, «oriented to the average general», is not at all like a lesson that is aimed at individual gifted personalities.

K. Jaspers, in order to consolidate his thoughts, gives the words of E. Rohde, that «ninety-nine of hundred listeners don't understand the lecturer, but a hundredth doesn't need him» [7, 124]. The student is usually not able to understand fully the contents and instructions of the lecturer, but he has the incentive, working intensively, to approach the personally-individual perception of the educational material and the appearance of new ideas. Personality of a lecturer is characterized by special individual features. The lecturer tries to make a transparent process of his thinking, his integrity and influence on listeners. The principles of autonomy and freedom of individual creative search are the goal of the formation of specialists in higher education.

The German philosopher is repeated by the author of a well-known work, «Open Society and its Enemies», K. Popper. The teacher should not impose his «measure of higher values to the disciples», but he must try to «stir their interest in these values. He must take care of the souls of his students». The general principle of education should be unquestionable trust and the principle – «don't do harm to students». «Do not hurt», that is, «give young people what they are in urgent need in order to become independent of us and able to make their own choices» [5, 300]. Independence and freedom are the highest values that contribute to the formation of independent ideological attitudes of the personality.

The difference, according to K. Jaspers, between the spiritually noble and spiritually non-liberal individual is as follows: the first one constantly thinks about his business and spends on it all his forces, and the second one always requires the separation of work and leisure. Aristocrat is inherent in selfless work, because simple labor seems to him spiritual laziness, which slowly exhausts creative forces. Therefore, true spiritual life, education, scientific search are carried out where there is a possibility of free realization of the unity of personality's creative efforts. The problem of creative freedom embraces various aspects of the individual's activity,



and in particular the professor of higher education.

Summing up, it should be noted that the process of forming of a model of a higher school teacher in the 21st century is based on the historical principle of educational activities. They are determined by the general development of national cultural traditions, the systemacy of natural and humanitarian researches, and embodies the necessary principles of integration as the basis of the overall goal of university education.

The formation of a teacher depends not only on the development of modern pedagogical technologies and psychological support, but above all on a certain type of society – closed or open and the level of development of democracy, creativity, and freedom of choice. This is the meaning of the ideological and methodological definition of the modern philosophy of education.

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# **ENTREPRENEURSHIP TRAINING: PEDAGOGICAL MANAGEMENT AS A MECHANISM FOR ESTABLISHMENT OF ADAPTIVE EDUCATIONAL ENVIRONMENT IN HIGHER EDUCATION INSTITUTION**

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Ensuring the competitiveness of Ukraine in the global market for goods and services requires multifunctional, mobile high-skilled workers with leadership and entrepreneurial qualities, communication skills and teamwork. The domestic educational system, with numerous undeniable achievements and accomplishments, nowadays needs to be substantially updated in line with the needs of social development (Analytical report, 2017, p. 428) [1].

The relevance of young people's entrepreneurship training is due to the importance played by small and medium-sized businesses in the state's economy. It is well known that entrepreneurship is an integral attribute of a market economy, it influences the creation of new jobs, stimulates the business activity of the population, promotes the development of the middle class, is an essential lever of the entire national production of the state.

The problem of entrepreneurship development in Ukraine contains a wide range of theoretical and practical issues that are covered in various areas of scientific research: economic (U. Vatamaniuk-Zelinska [2], V. Heiets [3], Z. Varnalii [3]), managerial (N. Heorhiadi [4], I. Markina [5]), legal (R. Bank [6], M. Kozachuk [7], Yu. Krehul [6]), sociological (Yu. Pachkovskyi [8]), educational (O. Vahonova [9], O. Romanovskyi [10]).

It should be noted that each scientific intelligence examines the identity of the entrepreneur at different angles, while all studies are combined by understanding of the special role of entrepreneurship in the economic development of the state and objectively are of great importance for the modeling of the educational environment and the creation of appropriate pedagogical conditions in the process

of entrepreneurship training.

In the pedagogy, the problem of forming the readiness of future specialists for various types of professional activity has always been a great deal of attention, but in the last decade it has become strategically important as a result of Ukraine's accession to the Bologna Process. This is, in particular, the introduction of a European experience of professional practical training for future specialists, which involves the implementation of a competent approach in teaching and the formation of a new system of diagnostic tools that will evaluate the knowledge and skills of a graduate of an institution of higher education, but competencies and competence.

In the European project TUNING it was proposed that "... the concept of competence includes knowledge and understanding (theoretical knowledge of the academic industry, ability to know and understand), knowledge of how to act (practical and operational application of knowledge to specific situations), knowledge of being (values as inalienable part of the way of perception and life with others in a social context)" [11]. By the national qualifications framework, the term competence is defined as the ability of a person to perform a particular type of activity, expressed through knowledge, understanding, skills, values, and other personal qualities [12].

In the context of mentioned above, during the period of entrepreneurship training, the educational environment in the university should be designed in such a way as to provide students with individual trajectories of learning. Individualization provides the learner with an adaptive path that appeals to his/her level, needs, expectations, personal rhythm and his way of learning [13, 14].

Based on the analysis of western experience, the authors believe that the quality of the educational process and the learning outcomes depend on the ability of the higher the educational institution to provide an adaptive learning environment.

A characteristic feature of modern society is its human-centrist orientation, according to which the most important indicator of progress is the individual development of personality: his/her abilities, thinking, satisfaction of cognitive queries and needs, the provision of rights and freedoms, etc. This is also fully relevant to the educational system, that, through a set of pedagogical conditions, is intended to develop the personal qualities of future specialists, which will facilitate their successful socialization and adaptation outside the educational institution.

Modern educational process should be innovative and manageable, and the basis of the concerted efforts of the teaching staff of higher education institution should be the image of the future specialist in its unity and integrity.

The system of requirements for future entrepreneurs is stipulated by:

- ideological and socio-economic realities (Ukraine's entry into the European educational, scientific, economic and innovation space; development of the entrepreneurial sector of economy; need of society, production and business for skilled specialists);
- processes taking place in the professional environment (ensuring fair

competition in entrepreneurship; social and environmental orientation of economy; stimulating the scientific, technical and innovative activities of small businesses; encouraging the development of the export potential of the country);

- changes in educational policy (transition to a two-level training on the state educational standards of a new generation; the development of a strategic partnership of higher educational institutions with science, production, business, involving universities in solving the problems of regional development).

We are close to the idea of Yu. Pachkovskiy (2004) [8], who notes that entrepreneurship has a great potential, which, first of all, is related to the creative nature of a human being whose disclosure depends on the creation for all its proper political and economic development by society, ideological, socio-economic, socio-cultural and socio-psychological conditions.

We should note that searching the answers to the question of why and how to teach future entrepreneurs nowadays enhances the aspiration of scientists to comprehend the integral pedagogical process from the standpoint of the management science and to give it a scientifically substantiated character.

According to the concept of pedagogical systems, developed by N. Kuzmina (1980) [15], the pedagogical system consists of the following structural elements:

- the purpose as the most important element of any pedagogical system that determines the fact of its creation;
- educational information intended to be the subject of learning by subjects of study;
- means of pedagogical communication, with the help of which the activity of students is organized on the learning of educational information based on the goals of the pedagogical system;
- students are a certain contingent of people who need some training, education or upbringing;
- teachers who meet the goals of the system and have the training information, means of communication, are armed with psychological knowledge about the subject of pedagogical influence;
- the result is knowledge, abilities, skills, formed in the student before the end of the system's lifetime, that is, before the release.

The result, or the level of success of the system, can be considered a criterion for the effectiveness of its activities.

It is known that the traditional notion of managing the educational process is revealed in such characteristics as the purposeful influence of the subject on the object of management; the influence of the control system on the managed system in order to transfer the latter into a qualitatively new state; introduction of elements of the scientific organization of pedagogical work, etc.

Today, the philosophy of "influence" in pedagogical management is gradually changing by the philosophy of "interaction", "cooperation", "reflexive management", which leads to the emergence of pedagogical management new

theory, which is characterized by a humanistic view of the essence of professional specialist personality formation.

The basic idea of pedagogical management is that the teacher becomes the organizer, adviser, “coach, and not mentor” in the process of training, upbringing and developing the personality of a future specialist. The use of the theory of pedagogical management allows us to move from the vertical control system (subject-object) to the horizontal system of organizational-managerial cooperation (subject-subject), which provides students with an equal opportunity to interact with the teacher.

From the standpoint of pedagogical management, entrepreneurship education includes the following stages:

- definition of the system of requirements for entrepreneurs; allocation of factors influencing on the formation process of graduates’ readiness for entrepreneurial activity;
- system of methodological principles’ identification of organization of educational and cognitive activity, which provide didactic support for the process of training future entrepreneurs;
- substantiation of organizational and pedagogical conditions that facilitate the process of formation of readiness of graduates for entrepreneurial activity;
- definition of criteria and indicators of graduates’ professional readiness for entrepreneurship.

Analysis of scientific research gives us the reason to assert that entrepreneurship training is a logical, purposeful, multicomponent, multifunctional and dynamic process, which today requires not only the introduction of a competent approach to learning, but also the mandatory organization of the subject-subject management of pedagogical process. At the same time, not only the content of education, but also the educational environment of higher educational institutions, the organization of educational process, educational technologies, including the independent work of students play an important role in the training of future specialists in entrepreneurship.

The question of how the learning process should be organized in order to be most useful for preparing future specialists for entrepreneurship is actively discussed in scientific sources and during scientific and practical conferences. Scientists appeal to historical sources, they study the domestic and foreign experience of the university, factors and conditions for the formation of motives of students’ professional growth; and all of them agree that nowadays higher education institution is designed to form not only the carrier of certain knowledge, but also a creative person who can use the knowledge gained for competitive purposeful activity in any sphere of public life.

Consequently, the management of the process of students’ professional training needs to take into account a set of factors that can affect the student, and as a consequence, the learning outcomes. These factors are often associated with the personality features of the student; with the educational environment of the

university; with the management of the process of professional adaptation of future entrepreneurs (Table 1).

*Table 1*

**Factors influencing the process of future entrepreneurs training**

<b>Factors related to the personality features of the student</b>	<b>Factors related to the educational environment of higher education institution</b>	<b>Factors related to managing the process of professional adaptation</b>
General education and the initial level of competence	Contents of the educational program	Monitoring of the process of students' adaptation to the educational and professional environment
Psychological readiness for educational activities	The complexity of the educational program and the schedule of classes	Involvement of students in scientific and innovative activities
Individual's ability to self-development and self-education	Type of interactions like "teacher-student", "student-student"	Implementation of educational and organizational innovations
Skills of independent work	Resource provision	"Higher education institution is a labor market (Enterprise)" form of interaction
Cognitive abilities	Forms of training	Work of employment services
Motives, interest in profession	Teachers' qualification	Professional orientation work
Character and temperament	Microclimate in a student group	The work in the curatorial direction
Emotional and volitional qualities	Availability of conditions for self-employment	The work of the Dean's Office

From the point of view of pedagogical management, there are important suggestions given by scientists to use innovative methods (active, problem-searching, game, projective) during the formation of professional competences, in which the student will play active roles, generate creative products (intelligence-maps), related to entrepreneurship, will simulate the elements of professional activity. It should be borne in mind that in order to achieve the positive results of future entrepreneurs training, timely correlation of the content of vocational education with the current economic realities of society is necessary.

Summing up the aforesaid we can conclude that the main subject, designed to solve the problems of education management, remains the personality of the teacher, and the high quality of educational services can only be achieved if teachers improve their skills continuously, and on condition of mobile response to changes that occur in society and in educational space.

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## **MANAGEMENT OF THE ENTERPRISE PERSONNEL SECURITY SYSTEM**

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The personnel security system is one of the main components of economic security, the effective management of which allows to reduce the risks and threats of the company (enterprise). Besides, these risks and threats associated with poor staffing, low motivation level, lack of understanding of the strategy and tactics of the enterprise at the macro level and short-term goals within functional responsibilities of employees. In this connection, an urgent problem arises in the development of a personnel security management system that would allow monitoring, regulating and timely warning of threats, while using both static models for the current control of the situation and dynamic models for constructing the trend and calculating forecast indicators.

The purpose of the work is to improve the management process of the enterprise personnel security system through the development of a multicriteria decision-making model.

Issues of personnel security were considered in the following publications of the well-known authors.

Brugger P. [3], which wrote that humanitarian work, especially in conflict areas, was more dangerous and every humanitarian organization is affected by serious security problems, constituting a threat to their staff. The article has been outlines the general approach of the ICRC (International Committee of the Red Cross) to security issues and describes the pillars of the security policy it has adopted in the field to protect its operational staff.

Dhillon G. [4] connects researches in thus area with the informational security area as it has done the majority of other scientists in their own studies. At the same time, he thought that a majority of computer security breaches have occurred because internal employees of an organization subvert existing controls. While exploring the issue of violation of safeguards by trusted personnel. In a final synthesis, guidelines have been provided which organizations could use to prevent computer security breaches.



Montaquila and Godwin [7] claimed that social networking sites have become immensely popular not only in this time. The proliferation of the type and number of social media venues have well exceeded by the quantity of data they produce. While a recent literature review has suggested this data is increasingly used in background investigations, its analysis was appeared devoid of any standardized protocol. As a result, specific resources, techniques, and case examples have been discussed, and the federal security clearance process is provided as a recommended protocol for investigators.

Comparative analysis of the relevance of categorical apparatus. The research and comparative analysis of the relevance of categorical apparatus in the field of personnel security was carried out by the authors using the Internet-analysis method [9].

In this study, the volume of categorical apparatus was formed by the following categories (in general, 5 categories that formed a cloud of tags): «personnel security» (1), «personnel security system of the enterprise» (2), «countering insiders» (3), «staff security of personnel» (4), «personnel security management» (5). On the basis of the obtained evaluations it is possible to formulate the conclusion on the feasibility of further research and the relevance of the formed cloud of tags in the interval 1997 - 2016.

The use of the Internet-analysis method is based on the query language, taking into account its specifics, while this language is supported by all search engines. Thus, the dynamics of research is ensured. Input is: 1. A set of categories that have created a cloud of tags,  $V = \{v_i\}$ ,  $i = 1 \div 5$ ; 2. Study period: 1997 – 2016:  $G = \{g_k\}$ ,  $k = 1 \div 21$ ; 3. A set of search engines include the most famous. This set is sufficient to obtain a sample of results that is representative.

Then a set of averaged estimates, in relation to the selected tag shows: the area of activity in the chosen field of application, the relevance of its own use, quantitative saturation, the demand for research in this area, the application ranking in the world scientific community (Table 1, 2). In addition, the study was conducted using three languages of the query: in Ukrainian, Russian and English, according to which the data was averaged.

Fig. 1 shows linear positive dynamics of the change in the relevance of the tag «staff security of personnel» throughout the research period of time, indicating a sufficient demand for research in this area. The relevance of a tag refers to the number (or frequency) of information about the term under study, obtained by the method of Internet-analysis [9], in the form of the number of links that are published by search engines.

The overall trend in the graph is very positive (with an increase of 784% during the entire research period). Also, on the graph there is a sharp increase in the relevance of this category: in 2000 (9,36 times compared with 1999), in 2002 (12,24 times compared with 2001), in 2006 (2,47 times compared to 2005) and 2014-2015 (12,62 times compared to 2013). The sharp increase in relevance in certain periods

of time may be due to the fact that Ukraine has experienced low fluctuations of economic growth, the first signs of which were scheduled in the last quarter of 1999. In 2014-2015, a marked increase in dynamics could be observed due to well-known events in Ukraine.

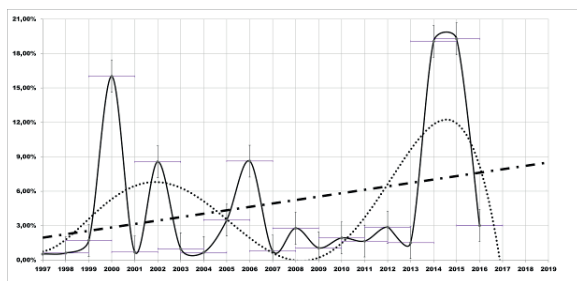


Fig. 1. Graph of distribution of relevance dynamics for the tag “staff security of personnel”: point line - forecast based on polynomial n-degree; point-dashed line is a linear trend that shows the general trend

The general trend of research and development in the selected cloud of tags can be seen in Fig. 2, from which one can observe general tendencies of changes in the plane of mutual influence of one on another tag.

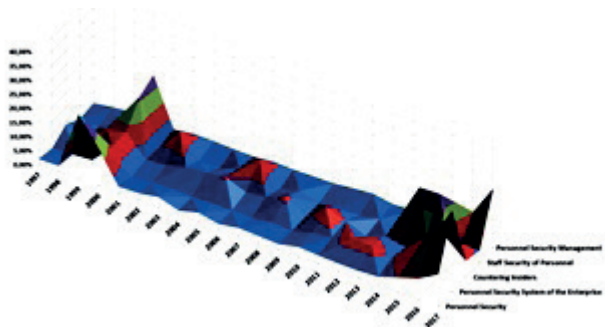


Fig. 2. The general trend of research and development in the selected cloud of tags

Also, this presentation clearly demonstrates the peaks of demand or the sharp increase in relevance in the chosen field, from which it can be judged on its decline and periods of rapid growth. The analysis of trend distributions for all categories of tag clouds proved the following author’s conclusions: 1. Absolutely all categories of tags that make up the selected categorical apparatus of the study had a rapid increase in demand, i.e. the relevance of research in 2000, which confirms the fact of the impact of the wave of economic growth in the state and its impact on the innovative development of Ukraine. And this confirmation is from every tag;

2. Absolutely all categories of tags have a general positive linear trend (with the exception of “personnel security”, which has an almost neutral trend) over the entire period of time investigated. This testifies to the constant demand for new developments and research in the chosen field of modern science; 3. There is also a correlated distribution of relevance for the following categories, which have been identified in separate groups: “personnel security”, “personnel security system of the enterprise” and “personnel security management” – the first group, which has a synchronous growth in 2000 and smoothly steady growth in next time period; 4. According to the type of graphic figure received, the following groups were distinguished: 1. “clock” thickening group (which represents a clockwise arrow with some thickening of one of the arrows), which includes the tags “personnel security management”, “personnel security” and “staffing system” security of the enterprise “, included “personnel security of personnel” and “countering insiders”.

If we distinguish categories with the highest values: “personnel security system of the enterprise” - 16,81% “and” staff security of personnel “- 69,58%”, then their sum will make 86,4%. This is very similar to the distribution of interest on the Pareto principle ( $80 \times 20$ ) [1, 5], that is, it can be interpreted – 20 % of the funds in the selected two categories, which constitute the categorical field of the topic of research, will increase by 80% for the whole field of study, which will lead to significant cost savings for businesses and businesses. Then the authors constructed a matrix of correlation coefficients (which is diagonal) for all categories in order to check the level of influence of one category to another and to form a general pattern of mutual influence, which are given in Table 1 (for calculation of this data, authors have analyzed the following dimensions: 1000 requires by each term for 21 search engines during 10 years).

*Table 1*

**Matrix of correlation coefficients for all categories by their numbers**

	1	2	3	4	5
1	1,000	0,221	0,568	0,167	0,429
2	0,221	1,000	0,516	0,616	0,667
3	0,568	0,516	1,000	0,377	0,537
4	0,167	0,616	0,377	1,000	0,530
5	0,429	0,667	0,537	0,530	1,000

Further analysis of the results in Table 1 allowed to detect weak or correlation dependencies (less than 0,3 on the Chaddock’s scale [2]) in the following categories (Table 1 is highlighted by the corresponding light gray color): 1 of 2 - «personnel security» from the «personnel security system of the enterprise»; 1 of 4 - «personnel security» with «staff security of personnel». This allows them to be excluded from the generated cloud of tags because they do not affect or have a sufficiently small impact on the specified categories.

Proposed multicriteria model of decision making. The first threat to personnel security arises when an employee is employed. Approving the right decision directly affects the functioning of the personnel security system of the enterprise [1, 6, 8, 10-11]. The paper proposes a multicriteria model of decision making, which will aggregate the results of processing the input information about the subject by several methods described below and propose an integral index of a candidate for a position, which will be the final decision of the automated personnel security system.

The main components of static model of personnel security system are the following: 1. a database formed on the basis of enterprise statistics processing, expert assessments and international standards; 2. set of criteria by which the calculation of the final integral index of the subject of research will be carried out.

To assess candidates and decide on their compliance with the position, matrixes of characteristics of the corresponding position in the organization are developed - «Top manager», «Manager of the middle level», «Specialist of the department» dimension  $n \times m$ , where  $n$  - number of alternatives (solutions),  $m$  - number of criteria (indicators of candidate assessment).

We introduce the symbols of the alternatives ( $A_i, i=1, n=5$ ) and the criteria ( $K_j, j=1, m=10$ ). The set of criteria was obtained due to expert assessments with the pairwise comparison method. Saaty's [12] scale was used to obtain weights for each criterion. Whereas consistency coefficient does not exceed 0,1, the obtained set of criteria could be used in a model. The process of obtaining intervals for valid values consists of the following steps.

Step 1. A representative sampling is formed, which contains information about employees according to the relevant indicators. To construct interval series, the data is ordered and the scope of the variation  $R$  and the length of the interval  $l$  is calculated by the formulas 1-2:

$$R = D_{max} - D_{min}$$

where  $D_{max}, D_{min}$  are respectively, the largest and smallest sample size.

$$l = R / k$$

where  $R$  is the sampling rate,  $k$  is a number of intervals ( $k = 10$ ).

Step 2. The law of distribution of each indicator is determined. To test hypotheses about the predicted distribution law, the Pearson criterion (criterion  $\chi^2$ ) is used. The observed value of Pearson's criterion is calculated by the formula 3:

$$\chi^2 = \sum_{i=1}^m \frac{(n_i - n_i^T)^2}{n_i^T}$$

where  $m$  is the number of variants or intervals in the variation series;

$n_i^T$  is the theoretical frequencies are checked by the distribution law;  
 $ni$  is frequency in the empirical distribution [10, 12].

The critical value  $\chi^2_\alpha$  lies in the table of quantiles  $X^2$  is the distribution of the given level of significance  $\alpha$  and the number of degrees of freedom  $\nu = m - l - k$ , where  $k$  is the number of parameters of the distribution law, which are estimated by the sample.

Step 3. Calculate the numerical characteristics of the distribution law (for example, the mathematical expectation, the mean square deviation for the normal distribution law).

Step 4. Calculates the permissible interval for each indicator, which forms the matrix of the characteristics of the corresponding position.

To obtain the result on the basis of the formed matrices used 7 criteria, as well as the following methods: 1) the method of an ideal point; 2) the method of relative action; 3) the method of the main criterion [1, 5, 9]; 4) lexicographic method; 5) the method of successive maximization [8].

The result of applying each of the methods will be the choice of a better alternative, that is, a decision on the subject of the study.

Dynamic model of the enterprise personnel security system (EPSS), the main components of which are: 1. a knowledge base based on expert assessments, a system of production rules and a morphological model of EPSS, consisting of the black box model, the structure and structure of the system; 2. the fuzzy model of EPSS, developed according to the Mamdani algorithm [10], the result of which is the receipt of a dynamic indicator of EPSS.

Application in the complex of static and dynamic model in the enterprise personnel management system will allow to automate the decision-making process by personnel departments and the department of information security of the organization.

Results. The following experiment was conducted to analyze the model, depending on the sample size, 1000 matrices of output values were generated for samples ranging from 50 to 5000 entries in step 50 with the help of the developed model (programming language R). Calculations were made by 10 decision methods for each of the matrices. The total amount of research data is 50 000 entries.

As a result, the dependence of the percentage of optimal decisions from the number of generated candidate records on the set of possible solutions is obtained, which is represented by a logarithmic function with determination coefficient 0,79. This determination coefficient is interpreted as high according to Chaddock's scale [2]. Starting with 450 candidates board, the percentage of optimal solutions stabilizes in the range [93%; 99%]. Thus, we can make a conclusion about 96% confidence in finding the optimal solution from a set of possible solutions with the help of the proposed author's model. Dependence of the percentage of optimal decisions from

the total number of statements on the number of generated entries of candidates is functionally exponential with determination coefficient 0.58. This determination coefficient is interpreted as high according to Chaddock's scale [2]. Starting with 500 candidates board, the percentage of optimal solutions stabilizes on the value 20%. That is, from the general set of statements there is always a probability of 0,2 finding the optimal solution, and hence the choice of the optimal candidate. The volume of the sample of possible decisions has a direct linear dependence on the number of generated entries of candidates, confirming the determination coefficient, which is equal to one.

An experiment based on a sample of 50 000 records allows us to draw conclusions about the 96% ability of the model to choose the optimal solution from 20% of the possible optimal alternatives, which confirms the accuracy of the model.

**Conclusions.** Thus, the analysis carried out confirms the relevance of the selected categories research, which suggests the feasibility of the study, as well as the need for further research and development of new methods and approaches in the field associated with the formation of the theoretical basis of the enterprise personnel security system.

The scientific novelty of the work is an improved approach to managing the enterprise personnel security system by developing static and dynamic models that take into account both quantitative and qualitative indicators.

The practical value lies in the application of multi-criteria methods and technology of fuzzy logic to automate the decision-making process in the personnel security system of the enterprise. The prospect of the study is to develop a system of support and decision-making for intelligent human resources management at the enterprise.

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## **COMPARATIVE AND LEGAL ANALYSIS OF FOREIGN EXPERIENCE OF CREDIT AND STATE SUPPORT OF AGRICULTURAL PRODUCERS**

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Loans for agricultural producers as a tool of state support for the agricultural sector has been and will always be the focus of the vast majority of states. Under these conditions, credit research experience rural producers gained special significance, and therefore determines its relevance. In practice, it is imperative to scientifically justify the attraction of sufficient credit resources to agricultural production on favorable conditions for them. After all, the current world trends of the permanent increase in the demand for agricultural products, caused by the growth of the population of the planet, the processes of urbanization and the constant reduction of sown areas against the background of reducing the fertility of the land, create the prerequisites for Ukraine with its agricultural potential and a real opportunity to become one of the leaders in world agricultural production.

Lending as a means of state support to an agrarian producer exists in most

industrialized countries, which spend considerable money on it. According to data provided by the Organization for Economic Cooperation and Development (OECD), which includes 29 countries (including the United States, the European Union, Australia, Canada, etc.), the costs of the seven recent years in supporting the agrarian sector through lending in these countries amounted to more than \$ 1.07 trillion [3].

In the agrarian production of almost all developed economies, a specialized agricultural credit system, the characteristics of which should be briefly stopped, were created for a long time. It arose in the middle of the nineteenth century. in the form of credit unions in England in the town of Rochydette (1844), the initiators of their creation were local weavers. And in 1846 a credit union of cooperatives in Germany was created. Its founder, F. Raiffeisen, laid the foundation for the principle of mutual assistance among those for whom it arose. The Union functioned without equity and dividends, and members of credit cooperatives carried joint solidarity responsibility. The search for a proper credit system did not end there, and already in 1850 in the Prussian village of Delich G. Schultz, on the initiative of the middle class, he improved the system of credit unions and created a «loan association» (a loan association). This undertaking has become quite widespread in Germany. The structure of these associations approximated by its characteristics to joint-stock companies. On the principles of the Raiffeisen system, local agricultural cash desks were created in France [7].

The historical experience of credit systems in the United States shows that they were something other than an excellent way discussed above. It is the state acted as the initiator of the establishment of the credit system financial institutions. Thus, the US emerged System Federal Credit Banks (1932), the Federal Insurance Corporation (1934), Federal Savings Insurance Corporation (1934), the Federal Association of the mortgage loan (1938), Federal Bank lending telephone (1971) where farmers along with other citizens could obtain loans.

Especially for crediting farmers in 1916 was set up farm credit system, which includes a system of federal land banks, intermediary banks for lending to farmers' land banks, credit association production needs (1933) [7]. This credit and banking system lending preference to farming activities and working in modern conditions, which will be discussed later.

In the process of forming a market system of credit support for the real sector of the economy, all countries had difficulties in taking into account its sectoral differences. So that creates many problems for the credit system, there is a close link between the lending mechanism with high risk in the industry and low profitability of rural production. This system reduced the amount of lending, especially during periods of financial instability of the economy, when the industry needed especially additional financial resources.

An example of the development of agricultural credit commerce can be Holland. In this country, the first cooperative bank was established in 1896. Later, such banks



were united into the national RABOBANK, which is still in its much improved form today. The Bank brings together almost 600 local self-sufficient banks, providing a loan of up to \$ 2.5 million [6].

But this is not the only system providing agricultural credit. Along with it, there is now a guarantee fund of the Ministry of Agriculture, which is to support agriculture uses grants the European Community. In the same direction, the system of commercial supply of the sector is also functioning by private banking structures.

Assessing the Dutch experience necessary to provide a positive example of an extensive system of providing credit assistance to support agricultural production.

Considering the financial and credit system of Ukraine in relation to the Dutch, in my opinion, it would be appropriate to borrow and apply some positive aspects of the mechanism of granting loans, but taking into account economic and other social relations that are inherent in Ukraine. This would contribute to the modernization of not only agriculture, but also the economy as a whole.

It is also interesting that, in order to create optimal conditions for the development of agricultural production for agricultural producers who can not be financed from their own funds or involved in the general conditions of capital, preferential lending is applied in many countries. Privileges are usually provided through targeted programs that reflect the priorities of public policy.

The basic principle of preferential crediting is partial compensation of the current interest rate from budget funds. However, the mechanism of its application in individual countries varies depending on specific conditions. Thus, in Austria, the size of the preferential rate of credit and budget compensation are directly dependent on the interest rate of the bank, in France the reduced rate is fixed, and the bank's rate only affects the amount of budget compensation.

French farmers are given six preferential loans with interest rates depending on the loan (from 3.75 to 8.25 years) with a maturity of 7-12 years for adverse environmental and environmental zones and 5-9 years for other districts.

For farmers in the Federal Republic of Germany, which is a participant in the Investment Promotion Program and the General Agrarian Program, preferential lending is made in the form of loans with a 1% annual interest rate, or by reducing the loan interest rate on existing loans by 4-7% [5].

In Ukraine, the issues of demand for credit resources and the real possibility of their return were very complicated. The main reasons include: excessively high fees for using loans, the tendency to provide mostly short-term loans, the absence of a regulatory framework for preferential lending regulation, which would include compulsory cases of such lending and responsibility for violating these prescriptions.

It should also be noted that in our country support is provided mainly to large agrarian enterprises. At the same time, farms producing the same or even larger amount of agricultural products receive less aid than large enterprises, and there is a lack of lending, subsidies, and extended support infrastructure.

Consequently, the current state of the Ukrainian farm sector requires a significant

increase in the volume of preferential lending and simplification of the mechanism for granting loans, in particular, within the framework of targeted programs, such as in Germany, where a fifth of the volume of medium and long-term loans of the German Bank of Germany is financed by the program preferential terms «Agriculture», «Young farmers», «Village renewal», etc.

Depending on the role of the agrarian sector in the economy of different countries and the peculiarities of the organization of economic relations, each country has created its integrated credit support system.

For example, the German system of credit support for the agrarian sector, as already noted earlier, now exists in such (due to history) composition: cooperative banks, savings banks, special banks, including Agricultural Rental Bank, mortgage banks, private commercial banks and European Fund for Reproduction.

The cooperative banking sector in Germany has a three-tier organizational structure. Its basis (lower level) is local co-operative banks.

The second level is the regional banks originally created by local banks, and now they are much wider than the previous range of activities.

To the third, upper, level of the cooperative banking sector belongs to Deutsche Genossenschaftsbank, the main shareholders of which are regional cooperative banks.

Local cooperative banks carry out all types of credit operations. Raiffeisenbank specializes in granting privileged, low interest loans to agricultural enterprises, most of which are involved in the trading of locally produced goods.

Until recently, the cooperative banks with preference for short- and medium-term, and later - and long-term loans. In addition to lending to the current activities of agricultural producers, cooperative banks finance investments in fixed assets and construction projects.

Agricultural loans are provided by the Agricultural Rental Bank, as well as other specialized, banks that are significantly smaller in their balance sheets. The Bank opens loans to all entrepreneurs engaged in agriculture, forestry and fisheries. When granting a loan, the bank takes into account the solvency of borrowers, the profitability of their households, liquidity, and the stability of performance. The criterion for determining the amount of debt repayment (interest and principal) is the amount of net profit.

The whole system of credit service provides the following types of loans: loans interregional, preferential, state and at the expense of the free capital market. The first three types of lending can only be carried out by the Agricultural Rental Bank.

Analysis of the practice of credit relations in Germany shows that preferential lending under the fulfillment of targeted programs and the use of targeted loans by specialized lending institutions, such as the Agricultural Rental Bank of Germany, promotes the development of agricultural production and the efficiency of using loans for these purposes.

No less interesting is the experience of Austria. Favorable lending covers the main types of agricultural activity, stimulating the development of the most

promising sectors and priority areas. In this country, up to 40% of the total amount of preferential loans is used to improve the organizational structure of farms, 27% - for the construction and reconstruction of residential and commercial buildings, 12% - for the mechanization of agricultural production, 5% - to promote the sale of products. In another country (Denmark) provides state guarantees for preferential loans to young farmers who bought their own economy [2].

A preferential loan for agricultural producers is also used in Japan, the US and other developed countries. Consequently, the feasibility of studying the experience of these countries and its introduction into the practice of farming in agriculture in Ukraine does not raise doubts. However, in my opinion, for the practical realization of such a task, first of all, it is necessary to establish preferential credit rates for loans granted to agricultural producers for production needs, taking into account the period of turnover of working capital on preferential terms. Since these interest rates will be lower than those set by the NBU, sources should be found to cover the difference between them and develop a legal mechanism that would correct this situation.

In the United States, lending is combined with a system of state financial support for the development of the agrarian sector of the economy based on common administrative and cooperative principles. Budgetary funds issued for agricultural programs are 80% controlled by the US Department of Agriculture through the Commodity-Lending Cooperation (CLC), the Farmers' Administration (FA), which was established in 1916, and the Farm Credit System (Farm Credit System) - the largest source of credit, as well as other financial and credit structures. The remaining funds are distributed through the state and local authorities [1].

CLC provides preferential lending to farmers who can not get borrowed funds without warranty obligations. Loans under the guarantee exceed 50% of CLC funds. She has more than two thousand representatives in the states and counties of the country. Decisions on the allocation of loans are authorized by these agencies after agreement with representatives of the local farmer community. They also control the effectiveness of the use of credit.

By the way, all expenditure on agriculture in the United States almost 60% are implementing targeted programs stabilize farm income. This Program, in turn, is divided into such programs as: «Price and Income Support», «Crop Insurance», «Agricultural Credit». The main group of credit institutions that make up the system of agricultural credit include: commercial banks, insurance companies, the Federal Credit System (FCS), Farmers' Administration (FA), Commodity Credit Corporation (CCC) and others, totaling more than 800 banks and associations [4].

Analyzing the experience of the leading countries of the world, it should be noted that at present two approaches to the role of the state in the economy are outlined. The first is represented by the concept of «limited state intervention in the economy», which involves conducting macroeconomic policies based on monetary methods. The second is the rather high active role of the state in transformations,

in particular, in the agrarian sector. Ukraine must finally decide which of them is the most favorable and necessary for it and for the development of agriculture, including its lending.

More reasonable and expedient is the latter, since, in my opinion, it only creates the necessary preconditions for the state to have an impact on the economy, including in the agricultural sector. This can be achieved through the implementation of such principles as the coordination of short-term and long-term goals in the adoption of regulatory and managerial decisions, fundamental and current tasks, mastering the mechanism of implementation of goals, ensuring the social orientation of all sectors of the economy and employment.

State regulation includes all actions of the state in the field of credit, pricing, subsidy policy, promotion of agrarian entrepreneurship and small business, active protectionism, protection and state support of the agricultural producer. Without this, one of the most acute and pressing economic and social problems will not be solved.

Investigation of quantitative and qualitative changes taking place in credit systems of foreign countries, as well as taking into account general tendencies and patterns of their worldwide development, will enable Ukraine to accelerate the path of the evolution of the agricultural lending system, which foreign countries have spent centuries since they have switched to market relations with this the credit system of the agrarian sector for centuries before our state.

A comparative analysis of the experience of highly developed countries of the world with Ukraine on the issues of credit policy is extremely necessary and useful in the context of the decision on the issue of Ukraine's accession to the EU.

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## **GAMIFICATION AS THE NEWEST WAY OF PERSONNEL MOTIVATION**

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Motivation is considered to be one of the main functions of management aimed at motivating people to work effectively, as well as an essential condition for the success of an organization in the context of market economy and economic integration.

An organization can be successful as based, first of all, on the desire of its employees to work with high efficiency, secondly, on the higher level of organizational commitment of employees, and thirdly, on an increasing level of personnel interest in the high-end results of work and the desire to contribute to the achievement of the strategic goals.

Nowadays more attention is paid to the socio-psychological aspects of motivation, able to create the conditions for achieving high results of production and economic activity of an organization with minimal costs [9, p. 294].

For example, creative and intelligent people have a chance to become an “Apple genius” in the American multinational technology company “Apple Inc.” There was a double benefit from realization of this idea: from the one hand, the head of the company emphasized that only brilliant people work in this company, while from the other, these employees were very proud of their high professional status and did their best to justify the trust of the top-management team [10, p. 30].

Recent research and practical experience has shown that along with application of traditional approaches, there is an objective need for the development and implementation of innovative models of personnel motivation. Among these models, gamification plays a particularly important role.

According to scientific position of Kevin Werbach [2, p. 24] “gamification is related to the use of game elements and clever use of game mechanics in a non-game context”. At the same time, Gabe Zichermann [7, p. 35] emphasizes that “the process of implementation of gaming strategies in business is called gamification”.

Due to gamification, it is possible to acquire the experience able to create the necessary sense goals and to strengthen the motivation of employees and customers. Any gamification project is aimed at the use of the available advantages of game mechanics, loyalty programs and behavioral economics to solve the existing critical problems and to increase the interest of employees in a better way”.

In general, gamification is the newest way of personnel motivation, which allows converting the routine work into the special game process event [1, p. 49].

The desire to have fun is one of the strongest motivators that motivate a person to do something with enthusiasm and to work hard with full dedication. Therefore, as a result of the addition of certain mechanisms and elements of the game to the process of performing different kinds of work and the formation of game thinking among the organization’s employees, it is possible to achieve a high level of their involvement and a corresponding level of enthusiasm in the process of carrying out work assignments. All this will allow to create a favorable educational environment in the organization, which is necessary for the formation of new professional experience and the search for new ways to solve various problems. Gamification includes three interrelated aspects that must be considered:

- formation of new experience;
- game interactions (i.e. objects and tools that form this new experience);
- game design (the practice of designing, implementing game elements into non-game processes).

In the present-day context, the interest of organizations in the use of gamification tools and methods in the system of personnel motivation is determined by a great number of factors, including, among others, as follows [3].

First of all, the game is a tool that demonstrates a high level of involvement. At the same time, according to the research results, people’s involvement in games does not decrease with the appearance of new information technologies on the market. On the contrary, different games actively replace other kinds of leisure and are rapidly introduced into many traditionally non-game processes in various spheres of life of modern society. In this regard, the search for opportunities to adapt the potential of games to the solution of critical tasks in the field of personnel management can be considered as a means of increasing the organizational effectiveness as a whole.

Secondly, the symbolism of all spheres of our life leads to the fact that favorable opportunities to receive unforgettable impressions and unique experience are needed for personnel at all levels in organization. Therefore, the experience of implementation of gamification projects in many companies, like “Nike, Inc.”, “IBM”, “Cisco Systems, Inc.”, “Microsoft Corporation”, “Google Inc.” proves once again that gamification is one of the most effective tools for corporate culture development and personnel motivation system improvement that can satisfy the sense of participation in achieving a common goal for each employee.

Thirdly, the various shifts that occur today in the structure of the personnel of many organizations can not but affect the management processes. Features

associated with the socialization of representatives of the new generation, their high involvement in new information technologies (primarily social media and online games) necessitate the introduction of new and more understandable elements of the management process.

Fourthly, there is a rapid improvement of information technology and their significant reduction in price for consumers. This factor significantly expands the number of enterprises and organizations that are able to introduce gaming elements and mechanisms into the existing personnel motivation system, since gamification is widely used not only in the activity of large business structures, but also in small and medium-sized enterprises, in start-ups, social organizations and government agencies of developed countries. Additionally, the scope of tasks that are expedient to solve with the help of gamification techniques, is also expanding. For example, the emergence of technologies that allow for tracking of personal data or personal achievements significantly improved the mechanisms of gamification and accelerated their integration into automated personnel management systems.

And finally, an important incentive for active use of gamification concept is the development of new online forms of interaction and teamwork. Consequently, any crowdsourcing project necessarily includes the game elements, as well as the game mechanisms to support participants' drive strategy, to determine their personal and group ratings and to create a competitive environment for solving various types of tasks [3].

Scientists have proved that using gamification to motivate personnel in an organization, it is possible to significantly increase the efficiency of employees' activity. To do this, one only needs to use the following forms of gamification [8].

To start with, it is a competitive form of communication, based on the motivation of employees through various competitions, the main topics of which are closely related to urgent problems or goals of an organization. This form provides for the creation of various contests and competitions, within which the important tasks can be solved.

For another thing, it is the victory form of gamification, which is based on the interest of employees in the game process, within the framework of which it is envisaged to perform certain tasks of the organization. The main difference of this form of gamification is that at the end of the game process all employees will be the winners. At the same time, the socio-psychological climate and the general atmosphere in the organization will be rather positive and conducive to coordinated work of employees in the organization.

And thirdly, it is the aesthetic form of gamification, which is based on familiarizing employees with the main goals and tasks of the organization. By the way, these goals and objectives should coincide with the interests and desires of the employees of the organization. As a clear example, here we can cite the typical situation when any employee can get a medal, a letter of commitment or a small gift for overfulfilling a sales plan [8].



When implementing this method of personnel motivation in modern organizations, it is possible to apply all three forms of gamification, as well as one of them only. However, as the foreign practice shows, the maximum effect can be achieved only by combining all three forms of gamification.

In addition to the above-mentioned forms of gamification, Western experts identify some mechanisms for using this promising new approach to personnel motivation. These mechanisms can be described in the following way [6]:

- rating of the winner – this forces players to come back again and again to the computer game and to replay its levels to improve the achieved position in the ranking;

- status, which plays an extremely important role in computer games, therefore, a player can not leave the game without achieving the highest status and rating (in modern organizations this can be the status of the best or most disciplined employee, or even the indispensable recognition by other employees;

- achievements in the form of tangible and intangible reward;

- behavioral impulse.

Despite the benefits provided by the use of gamification in the system of personnel motivation, its implementation is rather slow. That is why nowadays a small part of enterprises abroad (17 % only) are engaged in the use of gamification opportunities. In Ukraine, the percentage of the use of gamification in the personnel motivation system is even lower. According to the latest sociological survey of HR specialists [5], only 6 % of respondents are well acquainted with the specifics of gamification and actively use its tools in their professional activities. During this survey, another 17 % of respondents stated that they know about the existence of gamification in the workplace and the rest 77 %, who make up the majority of this sample, answered that they first heard about such a concept.

According to the last research of recruitment companies in Ukraine, during which 400 employees and 108 heads of companies from different regions of the country were interviewed, 27 % of Ukrainian employers have never heard of gamification before, and 60 % of the respondents have never encountered it in their workplace [4]. Thus, the potential of gamification in the field of personnel management is underestimated by both domestic and foreign specialists. According to Gartner's prediction study, by the end of 2018, about 50 % of foreign companies will use various gamification tools in their business processes [5].

It should be borne in mind that the use of gamification tools and techniques in the work with personnel requires an understanding of human psychology, as well as some new knowledge and skills of using specific gaming techniques in a non-gaming context. In this regard, we believe that in the near future enterprises and organizations will require managers with relevant competencies.

In general, gamification can become an effective alternative to the traditional tools of personnel motivation system in the coming years, as it can create unique experience of employees, provide additional sense and direction of their activities,



increase motivation and involvement of employees in the work process and generate profit for an organization.

Taking into account the results of our research of gamification, its forms and mechanisms of use, we consider it expedient to highlight the following advantages and disadvantages that will occur in organizations when this new method of personnel motivation is used directly.

For example, the main advantages of using the tool of gamification tool in an organization include the following ones [3]:

- replacing the routine work by the game process;
  - the ability to involve all employees in the main business processes of the organization in order to find the best ways to solve certain problems;
  - the possibility of developing creativity and extraordinary thinking among employees;
  - the possibility of self-realization of employees;
  - increasing the level of employees' interest in solving certain tasks;
  - the possibility of increasing the cohesion of the work collective in the joint solution of important tasks of various fields;
  - the ability to visualize the achievements and progress of employees.
- In turn, the main shortcomings of the implementation of this process in the activities of the organization are as follows:
- a superficial character;
  - the concept of gamification does not take into account the fact that the use of this method of organizing activities in the workplace may not be appropriate for some persons;
  - short-term effect;
  - the development of competition between employees, which can lead not to the achievement of the organization's goals, but to the weakening of the corporate spirit as a whole.

Thus, summing up, it can be said that gamification is really one of the latest methods of personnel motivation, which can give the desired result for the top-management team of the organization, if certain requirements are met.

The practical application of this method largely depends on the age structure of personnel, as well as its basic needs. Only a deep understanding of employees' wants, needs and motivators is able to determine the possibility and necessity of implementing this method in the existing system of personnel motivation.

However, taking into account the experience of European and American leading companies, as well as the emergence of a trend towards the rejuvenation of personnel, it must be emphasized that the nature of gamification development and the variety of its forms will undoubtedly improve the efficiency of all employees and the efficiency of business processes as a whole.

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## APPLYING THE US EXPERIENCE TO IMPROVE ECONOMIC EDUCATION IN UKRAINE

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Economic education within a market economy is very important for the training of competent specialists. Today, national education is in the period of being reformed and looking for ways to improve. Studying foreign experience is one of the ways of developing your own approach to improving the education system, implementing and adapting the most advanced and effective approaches to education.

In this regard, the economic education of the United States cannot fail to attract attention, for today it is the most economically and market-developed country, the

country that in a short time, having absorbed the best experience of the «old world», built up its own system of education, which is able to provide post-industrial economy with highly skilled specialists.

The analysis of current research has shown that foreign experience in higher education is studied mainly in relation to the retrospective formation of the education system (T.N. Bokova [2]) or its management (V.E. Luniachek [8]), or is analyzed by scholars mainly in the sphere of training only pedagogical staff (Ya.M. Belmaz [1]). That is, the foreign experience of organizing higher learning is studied mainly by teachers and, accordingly, attention is focused on the training of teachers in foreign universities, the United States, in particular.

A number of authors describe the general peculiarities of higher education in the United States.

For example, R.P. Soloviova and Yu.M. Soloviova [13] highlight the essence of the educational process in the USA, characterizing the main features and advantages of the American education system.

O.V. Tarasova [14] provides a general description of US higher education: she singles out the most well-known universities, the state research support program, the distribution of higher education institutions, etc.

O.A. Ihnatiuk [6] gives an overall record of the main directions of the education system of the United States, defines key aspects and innovations, describes the interdisciplinary approach and individualization of education.

Theoretical analysis of the peculiarities of master's education in the USA, without regard to a particular specialty, is submitted by O.M. Zinovatna [5].

As regards the study of the peculiarities of the organization of economic education in the United States, we consider it necessary to highlight the research of the following authors:

O. Naboka [10] presents an overview of the peculiarities of higher economic education in different countries of the world, including the United States, distinguishing the advantages and disadvantages.

O. N. Voinarovska [3] and L.V. Ohnivko [11] focused their attention on training of bachelors and masters of economics in the USA. The works are relevant as to the selection of the field of education and a certain stage of getting higher education.

However, despite a number of modern studies, the problems of practical training of economists in the United States and its application for the development and reform of higher education in Ukraine were not covered as a separate subject of research.

One of the peculiarities of all higher education of the United States is lack of a unified state education system, which results in the diverse structure of American universities.

Investigating the system of American education L. B. Ohnivko [11, p. 135-136], separates the following structural elements:

- institutions of post-secondary education of different types and semi-professional

schools with programs lasting from 1 to 3 years and issuing a certificate of low levels. Education of short duration results in getting a certificate of certain professional skills; education of longer duration leads to obtaining an Associate Degree, which gives the right to perform the work on the level of technicians and to enroll in the third year of colleges with bachelor programs. This stage is an intermediate stage between finishing school and receiving a bachelor's degree;

- community and junior colleges with two-year programs, the completion of which provides access to the third year of «bachelor» colleges and obtaining an Associate Degree or Occupational License;

- Liberal arts colleges being an essential feature of the US higher education system, which teach almost exclusively general disciplines such as history, chemistry, economics, etc., and award a bachelor's degree with a dominant academic and minimum professional content. However, there is a tendency to include a four-year program and professional courses in the final stage, which expands the capabilities of graduates. But for individual specialties, for example, medicine and law, in order to obtain a professional qualification, a student must also master a program of postgraduate professional training in order to achieve a master's degree in university schools;

- comprehensive colleges awarding a bachelor's and master's degree (programs include developmental professional components and extend professional component parts). Most of these establishments train teachers, businessmen, professionals whose activities require a master's degree;

- independent professional schools with a bachelor's (often master's) level of diplomas in the fields of technology, arts, etc. Having a program content close to those of the institutions of the first group, these schools hire much more qualified staff with university training;

- universities with all the training cycles belonging to the most prestigious group of universities and with the right to train doctors. These include colleges of a bachelor level, schools for training of masters and doctors. This group is often differentiated according to other parameters, for example: according to the level of scientific research (the number and thematic variety of doctoral theses presented each year); the volume of scientific financing; the presence or absence of a medical school with an experimental clinic; spectrum of faculties; finally, the number of teachers and students and the relationship between them.

Such an extensive structure of higher educational institutions contributes to a greater practical orientation of education and training of qualified specialists.

Although the main form of academic studies is a lecture that is presented to a class sometimes numbering up to a thousand students, this form differs significantly from the lecture in our understanding. Students do not make notes of a teacher's monologue - the notes are distributed to them, while thematic videos, presentations in PowerPoint, economic examples of existing companies, and dialogues are an integral part of lecture classes. In addition to lectures, students are required to attend

discussion sessions (seminars), and students of science faculties and schools should also spend some time in laboratories. During the semester, a student is required to turn in several written papers.

O. N. Voinarovska examines the peculiarities of training of bachelors of economics in higher educational institutions of the United States, emphasizing the combination of four approaches: pedagogical, informative, methodological, and definitive.

The pedagogical approach consists in the obligatory direct participation of students in the very process of teaching, the so-called active learning, which not alone destroys the barrier between a teacher and students, but promotes and encourages students to form their own attitude to the matter in hand using the knowledge they have already acquired.

The essence of the informative aspect of economics teaching in US universities is the use of such models that not alone reproduce the purely economic aspects of modern life, but illustrate their connection with political and social events, which are an integral part of the problem. It enables students to prepare for a comprehensive study of an economic problem.

The methodological approach used by American educators is to combine introduction of students to the realities of the economic world and to teach them methods of analysis and interpretation of these economic phenomena. Again, this approach emphasizes the feasibility of combining teaching economics with social, political and cultural backgrounds, thereby expanding students' horizons and their political and social competence.

The definitive approach to teaching economics in the United States relates, first of all, to the definition of economics itself. If the classical definition of economics is the science of the distribution of limited resources in accordance with unlimited needs, in today's American higher school, economics is defined as a science of the interaction of people in order to provide themselves and society as a whole with goods and services. This approach provides an opportunity to consider economic mechanisms from the social aspect of our lives [3].

Thus, we should note that while training bachelors of economics in US universities, there is a direct link between studying and the realities of life, the past experience of students, and what they can face tomorrow or in half a year; the focus on the formation of a specialist of the definite (partly narrow) profile; mastering the experience of the future profession even while studying; use of active learning methods and information technologies.

Analyzing master's programs of US universities, O.M. Zinovatna distributes them depending on the general purpose and the organization of the educational process into the following types: ancillary types; types of career advancement; types of apprenticeship; community-centered types [5, c.83].

The second and third types are of immediate interest for our study.

Master's programs of professional growth meet the requirements of students

to be competitive in the labor market by providing the qualified training necessary for career growth in a professional, rather than academic environment (emphasis added by the author.) Unfortunately, today the master's degree in any field of study in Ukraine is mostly oriented to increase the theoretical knowledge and pedagogical skills of students, it has a predominantly academic meaning – analysis of the master's degree curriculum in the specialties « Management» and “Entrepreneurship, trade and exchange activities” shows that half of the subjects are of general theoretical and research nature, which does not contribute to the further development of students' professional skills). They are primarily characterized by a direct connection between theory and practice, by the use of various workshops and interactive activities: situational studies, group projects and presentations, compulsory and optional internships, practical training; inviting freelance and visiting lecturers so as to give students specific professional experience; provision of educational services in consumer-friendly forms, for example, evening classes, weekend or summer classes, the use of the Internet technologies, etc.

Master's programs of professional apprenticeship are based on the idea that students can acquire the competencies they need only during practically oriented training under conditions close to real ones, overcoming the limitations of traditional classroom activities. In such programs, an active approach to learning is widely used; the collegial relationships between program participants and the training of professional ethics in practice are widespread, since it is important not only to transfer knowledge but also to form communicative competences. Such programs provide students with the opportunity to acquire knowledge in a different way, creating a mini-community that is united by solving common problems.

Special attention is given to organizing training in US business schools. Although business schools have spread all over the world recently (they also appear in Ukraine and Russia), about 60% of the leading business schools in the world are concentrated in the USA. Prestigious business education, for example, obtaining an MBA diploma in the United States, is usually a guarantee of a successful career [4]. The first business school appeared on the basis of Dartmouth College in the USA back in 1900 at the initiative of William Tucker. V. Tucker laid the foundation for training a qualitatively new generation of businessmen and managers who had to master deep understanding of the importance and role of business, he managed to combine theoretical training with the practical experience of businessmen. For this he received the nickname «The Great President.» Today Dartmouth Business School remains one of the world leaders in business education and is an arbiter of fashion in this field; its experience was adopted by many European countries [7, c. 42].

Among the most popular American business schools one can single out (according to the data from global ratings Forbes.com, Businessweek.com): Stanford University GSB, Harvard Business School, University of Pennsylvania: Wharton, Columbia Business School, Chicago GSB, Northwestern University (Kellogg), MIT

Sloan, University of Michigan (Ross) and others.

All of them competing in the educational services market are most effective in improving methods and developing efficient learning approaches.

The research method of Chicago Booth School of Business, the second oldest one, founded in 1898, is based on independent research for publications and activities of corporations on specific issues conducted by students, followed by the discussion of the outcomes and conclusions, and by making suggestions on how to make appropriate decisions in companies. Students are given the right to independently choose a topic of research, as well as a scientific supervisor, and a plan for mastering disciplines within the limits of the established learning logic. After completing a series of studies of corporations and literature on different disciplines, students acquire skills not only in consulting activities, but also in the ability to collaborate with various employees of the company.

The approach of the University of Oklahoma is to attract business experts having certain teaching capacities and some experience in teaching. The thing is that there are not always enough teachers who can teach the discipline in the light of modern business development trends. Therefore, integration of theory and practice is carried out here through an active and thought-out combination of teaching work on the basis of involving management personnel of leading companies, who have graduated, as a rule, from the leading US business schools and have an MBA degree.

This Californian approach to business education is based primarily on the training of specialists in training centers of companies, focusing, first of all, on the firms' own experience. However, teachers for such centers are trained on a centralized basis in Oxnard Institute (college) of management [9].

The most popular in the pedagogical activity of American business schools is the case-method. It was launched at Harvard Business School by Dr. Copeland in 1921, although it was only actively used it in the postwar period. This method brought world-wide glory to Harvard Business School.

A distinctive feature of this method is the creation of a certain problem situation based on facts from real life. The case method illustrates real life, due to which it is very widely used.

From the pedagogical point of view, the case-method is effective due to the following reasons: the use of elements of problem learning in the educational process; formation of skills for solving problem situations and tasks; realization of imitation of the applied decisions in real life situations; the formation of teamwork skills when discussing training problems and conducting presentations, press conferences, etc.

The analysis of the experience of teaching economists in colleges and universities in the United States, the peculiarities of the educational process in business schools has shown that interactive learning methods prevail in teaching aimed at effective training of future competitive specialists. The effectiveness of the use of such methods is especially vividly demonstrated by modern business schools in the

United States. It is in business schools that a practice-oriented approach, widespread use of interactive methods and modern information tools are most developed and continue to evolve and improve for the purpose of training of effective managers.

The experience of business schools in the United States has the prospect of being adopted not only for the development of domestic business schools, but also for the improvement of the system of higher economic education in Ukraine. Today, training of economists is in need of a greater practical component. When using interactive teaching methods, it becomes more efficient and effective.

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## **INCREASING COMPETITIVENESS BY INCREASING EMPLOYMENT SATISFACTION IN HUNGARIAN MUSHROOMING SECTOR**

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Human resource management differs significantly from other resources management. Its positive attribute is that it's a special kind of resource, which has a long lifespan, and has a possibility to increase its productiveness as the time goes by.

Furthermore, this is the resource which is capable of renewing itself. Its danger, however, is that it's not the possession of the company, therefore, it can freely decide if it wants to leave the organisation, or does not. The possible reason for leaving is either the low rate of motivation, or the offer coming from another place (Magda et al., 1998). Lentner (2018) Lentner (2016)

familiarise ourselves with characteristics of different attitudes and values. Staw and Ross' (1985) research results show us that employee contentedness is a firm attribute of people which can be replaced with extreme hardship only. We can only gather information on it through the behaviour of employees.

Kieser (1995) stresses in his book that Smith, Kendall and Hulin differentiated the importance of wages, the kind of work done, the possibilities of promotion, colleagues, and leaders as important to the employees' contentedness.

Locke determined that employee contentedness is a positive sentiment which comes from evaluating their work experiences. Ladahl and Kejner thinks that burying oneself in work can be interpreted as the level the person can familiarise themselves with their work, and the importance of the work they're doing (Ladahl-Kejner, 1965).

Greenberg and Baron state that contentedness is the emotional and behavioural reaction of a person to their work. (Szlavik, 2010). Kieser says that until the XX. Century, nobody was interested in the fact that people can actually be content with their work (Kieser, 1995).

Bakacsi's opinion is that one of the most important attitudes related to work is employee contentedness. This relates to how much the employees find their work a challenge, and how advantageous they consider their wages earned for it, furthermore, how cooperative their colleagues are (Bakacsi, 2000). Klein stresses that employee contentedness is a general attitude, which comes from the following attitudes' mix: specific work factors, workplace group relations, and unique characteristics (Klein, 2006).

According to Porter, being dedicated to the organisation has the elements of accepting the organisation's goals, initiative to reach the goals of the organisation with loyal work, and the wish of the employee to remain part of the organisation. He thinks that employees with high devotion will remain in the organisation even if they are sometimes unsatisfied with various aspects of their work (Porter, 1974).

Levy wrote that employees work for their livelihood, therefore, most of their time is spent on work. Employers have the obligation to reward people for this devotion (Levy, 2003). Dawis, Lofquist and Weiss created the work adaptation theory, according to which there's a mutual abiding between employees and organisations. A part of their theory is motivational factors, human necessities, unique competencies and work requirements coming from work activities (Dawis et al., 1968). Juhász improved on this, and thinks that two processes of acceptance are conducted at the same time.

The employee's competence, personal characteristics, abilities and knowledge adapts to workplace requirements, which have to be kept. Furthermore, the employee's needs and wishes are satisfied by the organisation and the work (Juhász, 2006). Eskilden and Dahlgaard believe that when determining the motivational potency of a given workplace, the potential for change and importance of work tasks is added together, and their average value is what's really important. Even if one factor is missing, the employee's motivation won't necessarily decrease (Eskilden-Dahlgaard, 2000). Cohrs, Abele and Dette state that the attributes of workplace atmosphere, and the satisfaction of employees have a correlation, which is higher for people who have a higher development demand.

They believe employees, who are content with their work, can evaluate their own work better than those who are not satisfied (Cohrs et al., 2006). Employee contentedness is significantly impacted by the quantity of tasks to do, as overwork will sooner or later make employees dissatisfied. Mello believes that employees have to be given work which won't make them overworked, but keep them motivated (Mello, 2006).

Greenberg and Baron think that employees are content with their work if they're neither overworked, nor given simple tasks (Szlavik, 2010). In light of Greenberg's and Baron's opinion, we can say that those having a higher position are more content, compared to those in lower positions. Furthermore, employees content with their work usually stay with their organisation for more time than their dissatisfied colleagues, who usually leave their workplace before they could achieve a promotion to a higher position.

Drafke's interesting argument is that employment affects the satisfaction level of employees. This means that some people are more content if they've been with their corporation for longer, whereas some people are exactly opposite, as after they reach their career goals, they can't find a challenge, and are almost bored at their work (Drafke, 2009) (Szlavik, 2010). If we take a look at Gyenes' and Rozgonyi's research, we can see that hierarchic relationships have a significant effect on employees.

The when and how of superior's intervention is a fundamental factor (Gyenes-Rozgonyi, 1981). Luthas stresses that as far as superiors' behaviour goes, we should analyse how much they consider the performance of their employees. Furthermore, he informs us that leaders have to include employees in any kind of large decision (Luthas, 1998).

Choo and Bowley concluded that training can only increase contentedness if the presenter aims participants of the postgraduate course, and has exceptional professional knowledge. We need training and education courses where employees can learn things they may implement during their operative tasks (Choo-Bowley, 2007).

Vaught and Pettit declared that if there's a strong connection between the employee and their work, neither vertical, nor horizontal communication has a strong effect on said employee. However, if the employee and their work has a weak connection, vertical communication coming from above has a stronger effect on performance (Goris et al., 2000). Milkovich and Newman believe that the wage system fundamentally affects if the employee remains in position, or chooses another workplace to migrate to (Milkovich-Newman, 1999). Fraser thinks that after a certain level of income, wages won't shape employee contentedness (Fraser, 1983). Poór believes that flexible wages are in selection and justice. When introducing cafeteria, one has to take the needs and requirements of employees into consideration (Poór, 2005).

Garai states that there are employees, whose work can also be their hobby.

Those challenging more work are most notably those of more knowledge and higher wages, and if they're rewarded by their performance, the market relationship between employer and employee is what's important (Garai, 2003).

Co-worker relations can be seen in information exchange during working, in cooperating with colleagues during work, and in personal interest in each other (Héthy and Makó, 1981). Group effort can affect contentedness. Wellorganised teams enjoy working together, however, if they work in a team where it's hard to cooperate for members, employee contentedness will not increase at all (Luthans, 1998).

Spector and associates analysed the conflicts of work and family, and they concluded that it has different effects in different cultures (Spector et al., 2007). Geurts and Mauno also prove that females have a harder time than males, because they have to make a better balance between work and raising children (Kinnunen et al., 2004). Work conditions have to be appropriate in order to do tasks efficiently, and generate contentedness. Such work conditions are the physical factors of the workplace, its technological level and used technological solutions (Bencsik, 2004).

According to Luthans, only extremely disadvantageous workplace conditions lower the employees' contentedness (Luthans, 1998). According to Levy, personal performance and contentedness is better, the higher position someone works in (Levy, 2003). Porter believes that the rewards of completed work are the key, because the employees will only be as content with their work, as possible it is for them to be, according to their wages (Porter, 1978).

The physical condition of employees, and their contentedness have a connection, of course. When taking a look at this, multiple instances of research support the view that this exists, and is important. Employees that are dissatisfied with their work usually have more health problems. Dissatisfaction may generate mental and emotional problems, and may appear as signs in f. e. worrying, which derails our concentration from efficient work.

If dissatisfaction is paired with larger stress or higher workplace loads, sooner or later, physical illnesses may surface. In more serious cases, depression and burnout syndrome may happen (Rozgonyi, 2000). Being late shows negative attitude towards work, and dissatisfaction. If someone leaves before their work is over, we might want to suspect (Koslowsky, 2009). Sometimes, there are theft cases of employees in the organisation, which Kulas and associates consider a manifestation of dissatisfaction (Kulas et al., 2007). 89

Source and Method. The goal of our research is to analyse the given agricultural sector, and see how contented the employees are with their work, what motivates them, and how efficient their work is. Our research is structured as follows: we determine the topic of the research and out target goals, then create hypotheses for it.

As part of processing international and domestic expert literature sources, we conduct a secondary research, and during the primary research, we use an empirical

data collection to build a database.

We employ statistical methods to either validate, or invalidate our hypotheses. Sampling was non-representative. During the quantitative research, research target goals can be identified, where the research translates data to numbers, and using statistical methods, helps us evaluate them (Corbin et al., 2008). We constructed our qualitative primary data via questionnaire. The standardised questionnaire makes sure that data can be subjected to comparative analysis (Malhotra, 2001). The employee contentedness analysis was targeted at employees working in our domestic mushroom verticum, using random sampling. The questionnaire contained 25 questions for three topics, the results will be introduced in detail.

The questionnaire underwent a preliminary test with 30 participants, originally faulty questions were fixed. During the time period between September 2017 and October 17, a nationwide sample was collected. The programme used for data evaluation is the SPSS 15 programme suite. MORAKUSZI and associates (2015) deal with the research topic of consumer satisfaction, however, the statements they made are just as applicable to employee satisfaction.

According to their description, contentedness can best be measured by questionnaires, focusing on different areas. However, evaluating the data received can only happen if they're converted properly into the format of Likert's scale.

Results. We can see on the Chart that the generation and willingness to learn of the mushroom verticum's employees have a significant relation, as the significance level is below 0,05. Most of the 31-40 employees at 65,5% would like to learn at a training related to mushroom production, whereas 34,5% would not participate.



Fig. 1. Learning and training  
*Source: Own research 2017*

The age of employees, and the effect their work has on the organisation's operation has no significant relation to each other, as the significance value is above 0,05. Based on our analyses, we determined that those employed in the Hungarian mushroom verticum don't know the actual value of their work, and are not clear on the fact that the competitiveness of the organisation is very dependent on the quality of their work.

One of the reasons for this is that in the mushroom verticum, physical labour are employed in the majority, and they have elementary education at most, therefore, they don't understand the connection between the work they do during their operative tasks, and the competitiveness of the enterprise.

During the questionnaire, we concluded that those employed in the mushroom verticum would like to learn at training related to mushroom production, thereby beyond production of healthy foodstuffs, mushroom production could also operate as one of the economy's pulling sectors.

Our hypothesis, which states that those employed in the Hungarian mushroom verticum have a need to participate in postgraduate training, which would help their everyday work, holds true. The ages of employees, and the importance of their work within the organisation has no significant connection, as the significance level was above 0,05.

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## **FINANCING ENERGY EFFICIENCY PROJECTS IN HEALTHCARE FACILITIES: BARRIERS AND MECHANISMS**

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The medical sector in Ukraine is a multilevel functional managed system. The organizational structure of the healthcare system of Ukraine consists of three main levels: national, regional and local.

According to the data of State Statistics Service of Ukraine, there are 1700 hospitals and 10200 outpatient clinics in Ukraine as of 2016 [1]. Most of hospital buildings are in communal ownership and managed by local public authorities (rural, village, city councils and their executive bodies, as well as sub-region



and region councils, which are representing the common interests of territorial communities of villages, towns, cities). A small part of medical facilities' buildings is state-owned and administered by the Ministry of Health of Ukraine, Academy of Medical Sciences of Ukraine and other central governments.

The authority of state and local government in implementation of energy efficiency measures in hospitals relate to the ownership of buildings in which they are located.

The Ministry of Health of Ukraine and the Ministry of Regional Development, Construction, Housing and Communal Services of Ukraine do not have any consolidated statistical and analytical information about technical condition of the buildings of medical institutions, as well as their energy and constructive characteristics.

At the same time, the analysis of the information available on websites of local authorities allows to conclude that most of these buildings were built between 1950-s and 1990-s [2, p. 586]. Many of these buildings, especially in small towns, villages and amalgamated hromadas, require major repairs, and some of them are in emergency conditions.

Majority of buildings have low thermal performance, characterized by high energy consumption (2-2.5 times higher than allowed by current national standards). At the same time, a microclimatic regime in buildings does not always correspond to normative indicators. In addition, the staff of medical institutions is usually not motivated to ensure rational and economical energy consumption.

Despite the unsatisfactory technical conditions of a large part of medical buildings, neither the Ministry of Health of Ukraine nor the Ministry of Regional Development, Construction, Housing and Communal Services of Ukraine have a common vision on the way how to improve operational and thermal characteristics of these facilities.

Currently there is no centralized data source with organized and verified information about implemented energy efficiency measures in the facilities of healthcare institutions. This is also related to overall absence of the centralized database of public buildings. In the upcoming future, during the transposition of Directive 2012/27/EU this problem will be addressed. The possibility to expand such centralized registry and include the information about planned and implemented energy efficiency measures could be additionally considered.

At the regional level, funding of the energy efficiency measures in hospitals is envisaged within the framework of regional energy efficiency and energy saving programs, which contains separate sections on public buildings, including regional healthcare facilities. Unfortunately, their funding level is unsatisfactory due to the lack of available funds in regional budgets.

Municipal healthcare facilities are mostly financed via local budgets and subventions from the state budget of Ukraine. These costs cover only current expenditures and are used to pay salaries to employees, purchase medicine and

implement medical programs. At the same time, works on capital repairs or reconstruction of hospital buildings can be carried within separate expenditure of local budgets.

Also it should be mentioned that according to Ukrainian legislation, related capital expenditures shall be covered by the owners of the buildings, which are usually the local authorities. In this regard, municipalities act as responsible bodies to implement actions in order to improve operational and thermal characteristics of buildings of medical institutions.

In particular, according to Article 71 of the Budget Code of Ukraine [3], municipalities have the right to finance energy efficiency projects via planned capital expenditures of the development budget, which is an integral part of the special fund of local budgets. The decision for budget allocation for implementation of construction or reconstruction measures of healthcare facilities is made by the local council decision during local budgets approval. However, such funding usually does not exceed 10% of the total expenditures of the municipal health facilities budgets. Thus, the hospitals' administrations direct these funds to the current buildings' maintenance.

The adoption of the Law of Ukraine «On Amendments to the Budget Code of Ukraine on the reform of intergovernmental budget relations» [4] provided additional advantage to local budgets development. According to the Law, starting from 2015, the formation of local budgets takes place according to a new model of financial support and budget relations. Such approach increases territorial communities' development and motivates to grow revenues for their local budgets.

This becomes possible by transferring revenue from the state budget, implementing new payment types and expanding the tax base. In particular, over the past 3 years, local government received additional authorities from the central government, along with additional resources. According to the Independent Association of Ukrainian Banking database, introduction of new model led to significant increase of municipal revenues, which in 2017 reached 192 billion UAH [5]. Nevertheless, the minimum medium-term investment need for municipal infrastructure modernization amounts to 10 billion euros.

The expansion of municipal authority in the public sector, in conjunction with their mandate to plan the development of budget funds for construction and reconstruction of social infrastructure objects for the entire period of project implementation, significantly increases their financial capacity for the implementation of energy efficiency projects in budget buildings, including healthcare facilities. However, given the high project costs of buildings' holistic thermal modernization, it is clear that implementation of such projects requires additional funds from external sources, which may include state budget, private investors, international financial and donor organizations.

Today, the pending process of identification of building ownership is one of the reasons of absence of widespread energy efficiency practice in healthcare

facilities. This is due to non-clarity of upcoming steps and changes in frames of implementation of health reform. Local authorities are waiting for the finalization of the healthcare reform, which supposes to introduce a new management system for public healthcare facilities' administration and organization. Once the reform process is completed, the aspects related to property rights for buildings of medical institutions will become clearer.

Implementation of the healthcare reform will lead to a shifting of responsibilities for maintenance and funding of primary and secondary healthcare facilities. The responsibilities will be reallocated between municipal and regional authorities with the appropriate transfer of hospitals' facilities that are under their jurisdiction. Thus, today municipalities do not see feasibility of capital investments into their facilities, which soon might be transferred to other authorities.

According to the management of healthcare facilities, the development and adoption of a national energy efficiency improvement strategy for healthcare facilities will allow to implement financing mechanisms for energy efficiency projects with attraction of funds from local and state budgets, as well as financial resources of international finance and donor organizations.

In frames of this research, publicly available information about projects, implemented by municipalities with the financial support of international financial and donor organizations, was taken. The analyzed data indicates that total number of energy efficiency projects in hospitals is quite low compared to other sectors.

The implemented energy efficiency projects in medical institutions were financed mainly on the terms of co-financing from local budgets and attracted loan or grant resources of international financial and donor organizations.

It should be mentioned, that effectiveness of energy efficiency projects in healthcare facilities is influenced by the peculiarities of building operation. For example, quite positive results are achieved by implementing low-cost measures, primarily establishment of energy management system in hospital facilities. Still certain barriers arise, when we talk about the development and implementation of energy efficiency projects in healthcare facilities.

It should be noted, that limited financial resources are one of the main issues for municipalities regarding implementation of overall thermal modernization projects in hospitals. The budget reform has created conditions for growth of financial capacity of municipalities. However, it can be applied mostly to financing low-cost energy efficiency measures in healthcare facilities. Thus, municipalities have to look for opportunities to attract additional financial resources, when planning implementation of overall thermal modernization projects measures.

The most feasible financial conditions of energy efficiency projects in healthcare facilities could be with the following breakdown:

- local budget funds – 20-30%;
- state budget funds – 20-30%;
- international financing institutions (IFI) – 40-50%, including a grant component;

- private investors should be involved on conditions of 100% project financing.

Very often representatives from municipal sector completely excluded the option of attracting Ukrainian commercial banks financing, due to high loan cost, as well as significant credit relations risks. At the same time, analysis of the existing conditions for projects financing from public, private and international sources shows that the attraction of these funds for most municipalities is problematic. This is primarily due to the limited financial resources, as the investment demand in the energy efficiency sector of public buildings exceeds all available offers by several times. Additionally, it should be noted, that co-financing from international financing institutions and the state budget approach is quite complicated due to different procedures of money allocation, procurement, implementation control with involvement of external consultants (therefore increase the project costs), etc.

In particular, international financing institutions may decide on financing based on projects' pre-feasibility study, while applicant must necessarily have design documentation with the conclusion of the state construction expertise in order to receive funds from the state budget. It means, that the time interval between the decision of the international financing institution and the decision of the state authority on project financing will exceed 1 year, which may negatively affect the project development.

Municipalities can rely on partial support for energy efficiency projects from the state budget in the form of various types of subventions. Today, the Law «On the State Budget of Ukraine for 2018» [6] provides 7 types of subventions, but only one of them [7] has a specific purpose, which is the healthcare development in rural areas. It provides opportunities to finance energy efficiency projects in rural healthcare facilities.

The adoption of the Law on performance-contracting with ESCOs [8] in 2015 created certain framework conditions for attracting private investments for financing of energy efficiency projects in public buildings. However, currently, most of private investors offer municipalities only low-cost investment measures due to the lack of sufficient amount of their own funds and fail to finance projects of overall thermal building modernization. Until now there aren't any examples using of public and private partnership for energy efficiency projects. In this regard, it should be considered, that the law on public-private partnership is not working. Moreover, due to the legislation gaps, even the indicated low-cost measures are not always effective and, in some cases, lead to unforeseen results for customers.

Currently, opportunities to attract credit resources from international financial organizations are also limited for most municipalities.

European Bank for Reconstruction and Development (EBRD) and European Investment Bank (EIB) provide credit financing only to large investment projects in the amount starting with 5 million EUR (for EBRD). This means that the total investment into the project with the local contribution has to be at least 10-30% higher depending on the requirement of international financing institution.

Thus, such credit funds are available in fact only to large cities (with more than 100 thousand citizens). While such credits are not available at all to major part of small cities (up to 50 thousand citizens) and medium sized cities (50-100 thousand citizens), share of which is more than 90% of the total number of Ukrainian cities. In this regard, in Ukraine there are 45 cities with more than 100 thousand citizens and total population of 17.3 mln., that can easily attract credit resources.

The Nordic Environment Finance Corporation (NEFCO) provides quite attractive credit conditions for small projects for municipalities, but credit capacities of this institution are also limited, which does not guarantee a positive review of a project application.

Participation in pilot grant projects for most municipalities is also problematic, as such projects are rare. At the same time, municipalities' access to IFI credit resources might be improved as soon as the administrative-territorial and health reforms will be completed.

In particular, it will be possible to develop energy efficiency projects for several healthcare facilities, at the level of united territorial communities and hospital districts, which will increase the attractiveness of their financing with the EBRD and the EIB participation.

Over the past three years, Ukrainian government made high efforts in order to improve energy efficiency legislation, as a result of fulfilling Ukraine's commitments to the European Union and the European Energy Community. In particular, the adoption of the Law of Ukraine «On Energy Efficiency of Buildings» [9] and planned introduction of secondary legislative acts will significantly improve the framework for projects development.

However, there are certain issues related to budget allocation regulations. For example, the Budget Code limits budget expenditures planning by only one year, which complicates the financing of energy efficiency projects as they require longer time to planning and implementation [3].

The budget planning procedure does not take into account peculiarities of the energy efficiency project process. As a result, there are widespread cases where the expenditures planning for energy efficiency projects are carried out only on the basis of the formal fact of project documentation availability, but without consideration of need for pre-financing measures for buildings technical inspection and carrying out energy audit.

Implementation of projects in healthcare facilities is also complicated due to the old state construction norms (DBN), which establish construction and reconstruction requirements of healthcare facilities. In particular, according to the existing standards in medical institutions it is prohibited to implement ventilation systems with recuperation, as well as LED lamps. Unlike European practice, in Ukraine, it is forbidden to use foam polystyrene for insulation of fencing structures and it is allowed to use exclusively mineral wool materials. These restrictions lead to inability of implementation of modern energy efficiency solutions in hospitals

and their unjustified cost increase.

A poor quality of the city's project proposals is also a general problem, first of all due to the lack of energy efficiency experts.

In particular, there are numerous cases where applications are prepared without consideration of buildings' technical conditions. Attention is drawn to the low quality of energy audits previously conducted for public buildings by cities in order to include them to project applications. Based on energy audits' results, reports do not reflect information about buildings' technical conditions and proposals for their additional construction examination. Most of energy audit reports do not include comprehensive analysis and assessment of different types of energy resources consumption. Reports often offer a template package of measures for heating systems or envelope insulation without proper justification of certain solutions, equipment and materials. At the same time, they lack proposals for modernization of ventilation systems (at least installation of minimal number of heat exchangers or air valves into windows), lighting, energy-intensive equipment replacement, water consumption optimization, as well as implementation of automated energy consumption management systems.

Most of energy audit reports do not take into account a need to finance preparatory and rehabilitation works, without which it is impossible to carry out an overall thermal modernization.

Poor quality of design documentation is related to the problem of skilled developers' involvement. In some cases, designers are limited by budget requirements for an application of the lowest possible prices for materials and services during further projects implementation phases. This leads to the fact that, on the one hand, the quality and effectiveness of a project is reduced, and on the other hand, it does not cause an interest of skilled construction and installation companies to participate in such projects implementation. At the same time, there are rare cases when construction companies, that won tenders on projects implementation, can not perform work within the established budget and are forced to resort to deception in such situations, playing on the price and quality of materials and equipment.

Along with this, procedure of permits obtaining from the State Architectural and Construction Inspection also need to be improved at the beginning of construction works. Such procedures and requirements to energy efficient project developers should be as simple as possible and shortened in time.

A common problem is also the lack of skilled workers during a construction phase. In addition, there are cases in which contracted companies are not able to provide skilled workers for the construction process.

According to the Sustainable Development Strategy «Ukraine-2020» [10], ensuring energy efficient energy consumption is one of the state priorities. In pursuance of this Strategy, local authorities have developed and implemented regional and municipal programs that, among other tasks, include energy efficiency measures for buildings in the budget sphere, including health facilities. Based

on these programs, each local authority during the budgeting period foresees the financing of specific energy efficiency projects.

Information about such projects is not summarized or systematized at the national level, so currently it is not possible to determine the total amount spent by local authorities on improving energy efficiency of healthcare facilities.

At the national level, there is neither state program for energy efficiency increase in healthcare facilities, nor a target article in the state budget of Ukraine for financing energy efficiency measures in the healthcare sector. The National Health Reform Strategy for Ukraine for 2015-2020 [11] does not provide financing measures in order to improve the energy efficiency of buildings of medical institutions.

At the same time, the state budget of Ukraine provides several items of expenditures, which are directed for financial support of regions and territorial communities, and chief controllers of which are the Ministry of Regional Development, Construction, Housing and Communal Services of Ukraine and the Ministry of Finance of Ukraine. The procedures for using these funds are determined and approved by separate acts of the Cabinet of Ministers of Ukraine, which enable local authorities to use part of these funds to improve technical condition of healthcare facilities and increase their energy efficiency.

In particular, the Law «On State Budget of Ukraine for 2018» [6] provides expenditures in the form of subventions and via State Fund for Regional Development, mainly managed by the Ministry of Regional Development, Construction, Housing and Communal Services of Ukraine. Thus, the State Budget of Ukraine for 2018 provides more than 15.57 billion UAH for the regional support. However, which proportion of this amount can be spent for energy efficiency projects implementation in healthcare facilities depends entirely on decisions of local authorities.

During the preparation and implementation of energy efficient projects in medical institutions, municipalities should be guided by the requirements of current legislation, to take into account the existing practice of similar projects in public buildings, as well as conditions to attract financial resources.

In order to attract financial resources for energy efficient projects, municipalities first of all should carry out a number of steps that can be divided into several stages.

The first stage is preparatory, which should define the following:

- 1) Monitoring of energy consumption in buildings.
- 2) Preliminary assessment of the energy saving potential including rough estimation of saving of energy and funds; cost of the project; payback period.
- 3) Elaboration on the options of possible funding of the project, as this will define the type of documents that need to be prepared.

The second stage is pre-project, which should foresee technical and financial aspects.

Technical aspects should include:

- 1) Selection of service providers for technical examination and energy audit or setting up internal team for this task.



2) Assessment of the building:

- collection and verification of data on operational characteristics;
- evaluation of the technical condition of structures and engineering systems;
- energy audit conduction.

3) Calculation of the forecasted reduction of energy consumption and monetary savings.

At the same time, financial aspects should contain:

1) Calculation of the tentative cost of energy saving measures.

2) Involvement of project financing:

- analysis of available sources of project financing;
- preparation of information on conditions of financing from different sources.

In order to implement energy efficiency projects successfully, a specific action plan should be developed, which should include the following:

1) selection of appropriate energy efficiency, water conservation, and renewable energy measures;

2) creating project partnerships to implement these measures;

3) exploring possible financing opportunities and involving needed financial resources.

After that a detailed feasibility study should be conducted, which should cover the estimation of energy and cost savings, that can further allow to verify planned efficiency measures in an appropriate, cost-effective priority.

Summing up, it should be noted that implementation of energy efficient measures on the basis of project-oriented approach could reduce significantly the negative impacts of energy use on the environment and increase the accessibility of primary energy reserves. It is important to shift the emphasis in energy efficiency projects' portfolio development into the direction of the intensive usage of renewable energy in order to reduce the amount of greenhouse gas emissions, and thus minimize anthropogenic pressure on the environment.

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## **GROUNDING OF DIRECTIONS AND INSTRUMENTATION OF COMMUNITY PARTICIPATION IN THE DEVELOPMENT OF THE TERRITORY**

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The CLEAR conceptual system demonstrates that effective community participation is possible: all key factors that it determines and which enhance

participation are open to the influence of government officials and politicians (Table 1)

Table 1

### Components of diagnostic tools CLEAR

Key factor	Key variables	Aims of policies	Local assessment (min 1 – max 5)
Can do	Level of education, job security, demography, resources, skills / knowledge	Capacity building, training and support for volunteers, leadership development	2
Desire	Identity, homogeneity, trust, citizenship	Community development, social partnership, development of a sense of citizenship and self-identity	3
Powers	Types of public organizations, events, public infrastructure	Investing in the development of public infrastructure, improving communication channels between the authorities and the community	3
Invitation	Various forms of citizen participation	Forms of participation, strategy, coverage of different categories of the population	2
Answer	The authorities are capable of responding to the expectations of citizens - through special events, ongoing training and feedback	Hearing, Prioritizing Activities, Feedback and Education	2
Average value			2,4

Source: [1]

Understanding these factors is the key to developing a policy that is, in its substance and substance, democratic, community-based, and the well-being of its inhabitants. We will comment on expert-defined points on the local evaluation of these factors. The average value of 2.4 is slightly lower than the average level, therefore, the state of development of civic participation as a systemic phenomenon in the development of the territory of the Ryabinovsky Old-Russian district is unsatisfactory. It should be emphasized here that somewhat higher scores, compared with other factors, were derived from factors such as «desire» and «authority». In our opinion, the presence of a successful community on the territory of the district, as well as the fact that its members are 22% of the county's population (that is, every fifth resident), testifies to the desire of residents to nevertheless participate in the development of the territory and create the future of the community by yourself. This is also emphasized by the results of a survey of the population of the community — where more than half of the respondents (56.1%) in one form or another are prepared to take part in various socially significant events in the

settlements of the Ryabinovsky Starostinsky District. It also shows a high level of cohesion and trust among the residents (the latter, in particular, shows the positive experience of payment of membership fees within the framework of the community, which are directed at various activities initiated by the organization). At the same time, one can not ignore the fact that the population of the district is heterogeneous, with just over a quarter of the population not officially registered in the district, which to a certain extent affects the interrelationships of the community. Therefore, the estimation by the factor of «desire» is slightly higher than average — 3 points out of 5.

The active activities of the Lumen community is the developed cooperation of this organization with local self-government bodies and regional authorities (as evidenced by joint participation in the development, implementation and financing of projects), the membership of local self-government officials in the association, as well as the active participation of these communities in international projects explain the higher than average rating by the factor of «authority», but lack of infrastructure development for the development of other forms of civic participation predetermines a general view of assessment — 3 out of 5. Lower than average estimates are explained due to other factors:

- The general level of education and employment, the availability of resources and opportunities for the development of civic consciousness (low level), but softened by a significant proportion of youth aged 18-35 years (27% of the population);
- Underdeveloped forms of public participation, inadequate activity (and openness) of residents revealed during public opinion polls, insufficient representation of interests of all categories of the population in community activities (projects implemented mainly for young people and children);
- The poor assessment of the inhabitants of the deputies, which indicates that the authorities are not able to fully respond to public requests and satisfy the needs of the population, etc.

On the other hand, using the approach used to calculate the community sustainability index (Table 2), we can identify the strengths and factors that hamper the development of various forms of civic participation in local self-government.

Consequently, assessment of the conditions and preconditions for the development of various forms of civic participation in local government and communities using the CLEAR diagnostic tools and the Sustainability Index makes it possible to identify, on the one hand, the readiness of residents (and existing conditions) for more active involvement of the public in the development of the territory, on the other hand, an environment for the realization of this activity (i.e. the activity of the communities and its results on the establishment and development of civic participation in the territory, on the basis of which it is possible to identify the strengths and weaknesses the parties to the development of forms of public participation and communities (Table 3), which will allow to further identify the future directions of action in this area and the corresponding mechanisms.

Table 2

**Indicators for assessing the community sustainability index**

Key indicator	Description (components)	Local assessment (min 1 – max 7)
Legal environment	Registration	2
	Operations	2
	Administrative obstacles	2
	Taxation	2
	Local legal capacity	6
Organizational capacity	Local centers, distribution	5
	Strategic planning	2
	Internal management structure	3
	Personnel support	6
	Technical support	5
Financial capacity	Local support	6
	Diversification of resource sources	6
	Fundraising	6
	Income received	6
	Financial Management Systems	4
Protection	Co-operation with local and central authorities	3
	Policy initiatives on protection	5
	Lobbying	5
	Local initiatives for legislative reform	6
Provision of services	A range of services and products	5
	Responsibility to the community	4
	Reach the population	6
	Coverage of expenses	6
	Government perceptions and support	4
Infrastructure	Resource Centers and Medium Support Organizations	6
	Grant Providers Local	6
	Coalition	4
	Teaching	6
	Cross-sectoral partnership	4

Public reputation	Coverage of the media	5
	Public perception of communities	5
	Government / business perception of communities	4
	Public relations	5
	Self-regulation	5
Average value		4,6

*Source: [2; 3]*

On this basis (Table 3), it is possible to identify promising directions of action to promote public participation in the development of the territory of the Ryabinovsky Starostinsky District of the Kirikivska regional territorial community:

1) Development of the potential of public participation (human and social capital);

2) Creating a proper legal field at the local level and the information environment.

At the same time, it should be taken into account that decentralization processes significantly change the powers of local self-government bodies, their levels, representation, etc. So, in place of the executive committee of the village council in the framework of regional territorial community the institution of old age comes. Under such conditions, on the one hand, the question arises of the need to strengthen public participation in the issues of internal communities, and on the other hand, the question is raised about the legal basis for such participation, their correlation with the role and powers of old age. The latter is determined by the Laws of Ukraine, as well as detailed in the subordinate acts of the local level — the Statutes of the regional territorial communities, as well as the Regulations on the head of state (see paragraph 2.1). Thus, according to the Law of Ukraine «On Local Self-Government in Ukraine» [68], the head of state (Article 54-1), in particular:

- participates in the preparation of a draft local budget on the financing of programs implemented in the territory of the relevant Oldostinsky district (item 6);
- makes proposals to the executive committee of the village, settlement and city council on issues of activity in the territory of the relevant Old City district of executive bodies of the village, settlement, city council, enterprises, institutions, communal property organizations and their officials (item 7);
- contributes to the formation and activities of bodies of self-organization of the population, organization and holding of general meetings, public hearings and other forms of direct participation of citizens in solving local issues in the respective village, settlement (item 12).

Consequently, the question of the development of various forms of local democracy, the promotion of self-organization of the population, and encouragement of its civic activity in accordance with the Law «On Local Self-Government in Ukraine», is also assigned to the authority of the village elders.

Public organizations, bodies of self-organization of the population, general

meetings of the population and public hearings, the procedure for which is regulated, in particular [4; 5; 6; 7; 8; 9] appear as an effective, legalized by the current legal acts mechanism for the implementation of public participation in the development of the territory .

*Table 3*

**Strengths and weaknesses in terms of ensuring public participation  
in the development of the Riabinovsky Starostat**

<b>Strengths</b>	<b>Weaknesses</b>
Availability of active communities (communities, Association)	Underdevelopment of other forms of direct democracy (the bodies of self-organization of the population, low coverage of the processes of studying public opinion), other communities
Coverage of a sufficiently large number of population (membership in the public organizations has 22% of the population of the old town)	The lack of proper local legal support for activities and the development of forms of direct democracy
Interaction and cooperation of public organizations with local self-government bodies, state structures	Insufficient representation of public organizations (not all groups are covered)
Availability of skills and experience in preparing projects and supporting their implementation	Dissatisfaction with the work of local governments
Assistance to the local self-government body of the public organization	The need of citizens to increase their involvement in addressing issues related to the development of territories
Trust and public participation in public organization activities	Insufficient technical and personnel support for public organization activity, low level of employment and education of the population, low level of access to modern communication channels
Funding of public organization by membership fees and financial assistance from local governments and government bodies	Not enough wide range of products and services of public organizations (mainly projects focused on young people and children of a social nature)
Efficiency of internal structure of public organizations, financial transparency, efficiency of management	Insufficient opportunities to finance and cover the costs of communities activities, etc.

*Source: author's development*

Guided by the provisions of the current normative legal acts (Law of Ukraine «On Local Self-Government in Ukraine», «On Public Associations», «On the bodies of self-organization of the population», subordinate legal acts), as well as the Charter of Kirikiv settlement, we can characterize promising forms of public participation in the development of the Ryabinovsky Old City district and the necessity (as well

as possibilities) of their local legal settlement (Table 4).

Table 4

**Comparative characteristics of various forms of public participation  
in the development of the territorial community**

Criterion	General meeting of citizens, meeting (conference of citizens' representatives at the place of residence	Bodies of self-organization of the population	Public Hearings	Public organization
1	2	3	4	5
Legal basis	Resolution of the Cabinet of Ministers of Ukraine «On Approval of the Provisions on General Meeting of Citizens at the Place of Residence in Ukraine»	The Law of Ukraine «On the bodies of self-organization of the population»	The Law of Ukraine «On Local Self-Government in Ukraine» (for example, the Statute of the regional territorial community)	Law of Ukraine «On Public Associations»
Status	Form of direct participation of citizens in solving local issues.	Representative bodies created by inhabitants; may acquire the status of a legal entity; is an integral part of the system of local self-government	Form of direct participation of citizens in the formation and implementation of policies; are mandatory in relation to certain issues specified by the Law	Voluntary association of individuals for the realization and protection of rights and freedoms, satisfaction of public interests
General goal (tasks)	Protecting and protecting the interests of the inhabitants of the territory through discussion of the most important issues of local life	Creation of conditions for participation of residents in solving local issues; satisfaction of social, cultural and household needs of the population; participation in the implementation of socio-economic, cultural development of the territory, other local programs	Involvement of citizens in participation in the management of state affairs, creation of opportunities for their free access to information on the activities of executive authorities, ensuring transparency, openness and transparency of the activities of these bodies.	Defined by the organizations themselves in the Statutory Documents
Coverage	Population living in a certain territory	Population living in a certain territory	Population living in a certain territory	Voluntary participation of the population irrespective of territorial character

Compe- tence	More than half of citizens residing in the territory (two-thirds in the case of convening a meeting of representatives (conferences))	More than half of the total stock	Participation is voluntary, the authorized membership is not defined	Regulated by the Statute
Decision	The decisions of the meeting are obligatory for the bodies of territorial self-organization of citizens, all citizens who live on the corresponding territories; are taken into account by local self-government bodies in their activities	The body of self-organization of the population on issues assigned to its powers may make decisions organizational and administrative nature	Minutes of the meeting; proposals are subject to mandatory review by local government bodies	They are not endowed with powers other than those provided for by law
Rights regarding the realization of citizens' rights to participate in the development of territorial issues	To address proposals to the relevant Soviets, state bodies, other bodies of local and regional self-government, heads of enterprises, organizations and institutions; receive public information	Participate in meetings of relevant local councils and their executive bodies related to their activities, as well as in considering issues initiated by the body of self-organization of the population, with the right of an advisory vote; receive public information; to make proposals to local self-government bodies; making proposals to the Social and economic development projects and programs, and draft local budgets	May be initiated by citizens (initiative group), are mandatory in relation to certain issues specified by the Law	To apply to bodies of state power, bodies of local self-government with proposals; receive public information; to participate in the development of projects concerning their sphere of activity and important issues of public and public life; to participate in the work of advisory, advisory and others, subsidiary bodies in power structures.



Compe- tence / functions	Consideration and discussion of any issues related to local self-government, listening to information (reports); making appropriate proposals; the election of public committees and councils, the establishment of their composition and number, approval of the costs of their functioning	Issues attributed to the authorities of local self-government; representative, organizational, consulting, controlling functions, information, assistance in the work, etc .; own and delegated authority	Consideration and discussion of any issues related to the exercise of local self-government, within the limits of the Constitution and laws of Ukraine, hearing of information (reports); making appropriate proposals	Participation in the process of formation and implementation of state policy, solving local issues (consultations, participation in drafting legal acts, participation in consultative and advisory bodies)
Property and financial basis / organization of work	Funded by the budgets of the respective councils; the organization of work is carried out in accordance with the national programm	May be in operational management of property and finance to carry out their activities; proper property and finances; organization of work in accordance with the national programm and its own decisions	Funded at the expense of the budgets of the respective councils, the central government, the state budget; organization of work in accordance with the national programm	May have their own property and finances; the organization of work is carried out in accordance with the Charter

Source: author's development

So, commenting on the data in the table 3.4 we note that comparing such forms of public participation as the General Meeting of Citizens at the place of residence, the bodies of self-organization of the population, public hearings and the activities of the Public organizations, it can be concluded that the largest «legal personality» is owned by the bodies of self-organization of the population and communities, as their activities envisage making specific decisions that are to be implemented (and can not be considered only as a proposal).

At the same time, the communities' activity is not related to a specific territory, it does not ensure the representation of all residents of the community. It should also be noted that the body of self-organization of the population is, by definition, a representative body and a component of the system of local self-government (and, accordingly, the form of the exercise of direct democracy).

Comparing «territorially bound» forms, such as the General Meeting of Citizens at the place of residence, it should be noted that the General Meeting is a kind of basis for the establishment and operation, while the latter is an instrument for implementation of the decisions of the General fees.

Consequently, in the pastoral districts a special role should be given to bodies of self-organization of the population. Indeed, the «strong» funds are not only a reliable partner for the village elder in the exercise of their powers, but also a resource that will help them to strengthen the influence of the entire united community.

In addition, they can be a means of public control from the community of the village or communities of villages belonging to the Old Town district, where the elected headman, for his current activities.

In 2015, some Ukrainian cities (Chernihiv, Cherkasy and Poltava) introduced public budgets for the first time in Ukraine, and respective working groups were created by the decisions of city mayors. By the end of 2016, 18 cities of Ukraine had already been covered by this process, of which 3 were in Sumy Region (Romny, Sumy, Trostyanets). In the end, in 2018, 18 initiatives of the Sumy citizens will be implemented within the framework of the public budget. For their implementation in the city budget 2018 provided 9 million UAH (UAH 5.4 million for local projects and UAH 3.6 million for all-city projects) [10; 11; 12].

The reason for such an active development of participative budgeting in Ukraine is to a certain extent that if the controlling function of citizens (and relevant institutions) in relation to the budget is stipulated by current normative and legal acts and is traditional (but not sufficiently effective and implemented in practice), the party's budget somewhat changes the functional role of public participation in the budget process — citizens appear as co-authors of budget proposals and applications, which allows directing financial resources precisely at those events which, in the opinion of the community is the most problematic. Thus, the party's budget appears as one of the most developed forms of interaction and cooperation between authorities and citizens, in particular, in the budget process.

The party's budget (hereinafter PB) is a democratic process that involves providing citizens (in particular those who formally have no citizenship) the right to distribute part of the funds from the local budget or other budget that concerns them. The participative budget is a relatively new phenomenon in the democratic practice of the territories. At the same time, it has already been proved that municipalities with participating programs improve the lives of their citizens [10; 13]. The main advantages of the participative budget are: increasing the participation of citizens in resolving issues of distribution of funds from the state and local budgets; increase of the level of trust of inhabitants to the authorities, avoidance of social conflicts; increasing trust in local authorities; effective budget management; solving the problems that are most worrying residents of the city, region or country.

The participation budget is an important step towards democracy and the growth of social activity, since it allows residents to develop their own projects and control part of the state and local budgets.

Today, for the exchange of experience between Ukrainian cities on the introduction of the public budget, a specialist group has been set up in the social network Facebook «Public Budget», and relevant information portals are available.

At the same time, it should be pointed out that the introduction of a unified approach to the implementation of the practice of budgeting in cities and rural areas is difficult, given the: technical capabilities (different levels of Internet availability); demographic characteristics (the age structure of the population and the difference

in its educational level determine a significantly different level of the share of PC users in urban and rural areas, the activity of residents on the Internet, etc.); financial opportunities (limited resources of rural budgets on the implementation of an information campaign, creation and support of the functioning of relevant information systems-portals); organizational capabilities (due to the limited financial resources are the complexity of the allocation of specialized organizational structures or at least persons from local government officials responsible for organizing and conducting an information campaign, registration and control of proposals, ensuring the functioning of the information system); the peculiarities caused by the organization of the budget process, the formation and distribution of financial resources in the united territorial communities; peculiarities stipulated by the rights and powers of individual officials, as well as separate components of the system of local self-government bodies in the united territorial communities regarding the representation of the interests of the domestic communities regarding the budget. Please comment on the last one. Thus, according to the current legislation, the interests of the internal communities within the united territorial communities are represented by the village monitor. The range of his powers in accordance with the Provision on the village elder of the Kirikiv territorial community, in particular, with regard to the budget, includes: «participation in the preparation of a draft budget of a territorial community in terms of financing programs implemented on the territory of the respective settlement» [14]. Consequently, the participation of citizens in the budget process (participation in the development of budget proposals) can be implemented: directly, as a rule, advisory and control functions; through the village monitor (by submitting proposals to him); through the body of self-organization of the population — to its own powers, in accordance with Art. 14, item 3 of the Law of Ukraine «On the bodies of self-organization of the population» includes «the introduction in accordance with the established procedure of proposals for projects of local programs of socio-economic and cultural development of the corresponding administrative-territorial units and projects of local budgets». These proposals can be made by the appropriate decision of the community.

Thus, leaving the undeniable need for attracting citizens to participate in the budget process, we consider it expedient to implement organizational measures for the implementation of the practice of the participatory budget in the internal communities of the united territorial communities on the basis of the relevant organizational and administrative decisions of the body of self-organization of the population.

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