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CONTENTS

Economics

- Volodymyr Gobela.** Structural and functional characterization of greening as an object of theoretical analysis.....5
- Nataliia Zahorodnia.** The role and place of the human factor in the modern evolutionary environment 12
- Iryna Ignatieva, Elena Babina.** Impact of leadership potential on change potential.....19
- Nataliya Ivanova, Tetyana Kuznetsova.** Start-up as a tool for disruptive innovation31
- Irina Markina, Alina Oliinyk.** Effective cost management - a priority condition of agricultural enterprises development42
- Ilona Mahmudova, Olena Kalashnyk, Anastasia Konoplya, Julia Remizova.** Implementation of the haccp system for the dairy industry.....52
- Svitlana Rodchenko.** Risk assessment and perspectives of Ukraine’s banking sector functioning.....63
- Andrii Savitskyi, Tetiana Pikhniak.** Methodological approach to cost management in purchasing activities: savings plan and its implementation76

Public administration

- Kateryna Mishchenko.** Institutional preconditions for the formation of communicative relations of state authorities in Ukraine.....91
- Tetyana Tymoshenko.** Mechanism of public and private partnership in the framework of managing sustainable development of tourist destinations100

Pedagogy and psychology

- Yuri Kuznetsov.** Psychological and pedagogical aspects of the development of the soul according to Z.Freud109
- Kateryna Tryma, Natalia Salnikova.** Higher education quality assurance in the context of integration into the EHEA (on the example of departmental HEIs)116

Natalia Shapovalova, Larisa Panchenko, Alina Bublik, Olga Ryzhyk.
Construction of parquets, mosaics and plane tessellations and using them in the
course of geometry in the middle and high school127

Svitlana Yalanska, Valentyn Marchenko, Alexander Moskalenko. The problem
of university students tolerance manifestation.....134

Medicine and physiology

Oleksandr Kutovyi, Oleksandr Klishyn, Andrii Snisar, Mariia Onyshchenko.
The impact of antiseptics on the microflora of pyogenic liver abscesses142

Tetyana Ivakhniuk, Roman Dovgan, Oleh Goncharuk. Microbiological
assessment of the clinically significant cultures of the opportunistic microorganisms
isolated from the intestines of the patients with Alzheimer’s disease.....149

Olha Makarenko, Malika Karimova. Evaluation of the integrated indicator
"quality of life" in children against the backdrop of gastritis and duodenitis
treatment157

ECONOMICS

STRUCTURAL AND FUNCTIONAL CHARACTERIZATION OF GREENING AS AN OBJECT OF THEORETICAL ANALYSIS

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Annotation. *The expediency and necessity of consideration of the concept of greening is indicated. The concept of greening has been structured. The purpose, subject, principles, goals and objectives of greening are defined. The main subjects and objects of greening are established. Identified: directions, methods, methods and forms of manifestation of greening. Conclusions have been made regarding the need for further study of this concept and its detailed structuring and classification.*

Key words: *greening, environmental management, environment, structuring, principles, methods of greening, functional characteristics.*

In the context of modern dynamic development of the world and active globalization, local environmental problems have turned into global environmental problems and have become a significant threat to the existence of terrestrial civilization. There is a need to find a safe way for humanity to exist. This led to the emergence of such a phenomenon as greening. Although the term "greening" has emerged relatively recently, it is generally understood to be relevant.

The concept of greening is widely used in scientific works, in periodicals, in political discussions and in everyday conversations. There is an urgent need to understand the essence of the concept of greening and its place in the system of modern security studies. We made an attempt to carry out the structural and functional characterization of greening.

For the simplification of analysis, within our study, we will consider the concept of greening in general (in wider content).

This concept will mean a systematic approach that involves a deep awareness of the importance of the environment in society, which is reflected in all types of human activity through the introduction and implementation of ideas of environmentally safe existence of mankind.

In order to carry out the structural characterization of greening, it is first of all necessary to identify the following basic structural components: purpose, object, goals, principles, tasks, subjects and objects of greening. We will assume that the main goal of greening is to transform socio-economic development into an environmentally sound and acceptable form. Such a generalized formulation of the goal of greening reflects its philosophical essence and reflects the main strategic direction. Thus, greening can be seen as a philosophy of worldview. Greening is aimed at finding the optimal balance

between economic, environmental and social systems.

Since the concept of greening is complex and ambiguous, the definition of the subject is an important stage of structural characterization. As noted, the concept of greening is applied in different fields and at different levels. Accordingly, the subject of greening may be: education and science; legislation; governance; economic activity; household activities; nature management; nature conservation activities.

Any goal is achieved by achieving goals and solving more specific tasks. We believe that the following components should be attributed to the goals of greening: the formation of an environmentally conscious society; environmentally friendly and safe production; rational use of nature; reduction of technogenic load; conservation and restoration of the environment; ensuring an adequate level of environmental and economic security.

Considering the purpose and the stated goals of greening, it is possible to define the greening objectives. It is worth noting that the main task of greening is to make eco-friendly products and services an attractive and effective product for the national economy [1]. Thus, the tasks of greening include the following components: introduction of environmental education of the population and environmental education of youth; raising environmental awareness and culture of the population; reduction of production waste; non-waste production, utilization and processing of waste; introduction of resource-saving technologies; creation of efficient treatment systems and facilities; development and implementation of environmentally friendly and environmentally friendly technologies; increase of environmental friendliness of products; reproduction of environmental resources; implementation of environmental measures; conservation and restoration of natural biodiversity; conservation of natural landscapes and nature protected areas.

The fulfillment of these tasks ensures the implementation of greening processes. At the heart of the system of greening measures are fundamental principles, the implementation of which provides environmental improvement of socio-ecological and economic systems. We can formulate the basic principles of greening based on the goals and objectives of greening.

The principle of legality is that the system of measures must be adequately legal and enforceable. Legislation should encourage and stimulate entities to greening.

The principle of ecological dominance presupposes the main focus of the system of ecological measures on reduction of anthropogenic load, preservation, protection and reproduction of the environment, ensuring the ecological dominant in the implementation of any measures of ecological modernization.

The principle of creating a safe environment implies the achievement of socio-economic standards, the progressive development of socio-ecological-economic system and ensuring the proper level of economic, social and environmental security.

The principle of efficiency of development is that the set of measures of greening should provide orientation on efficiency of actions in all system: nature management, production, consumption, recycling financial activity, etc.

The principle of innovative approach provides the maximum possible use of

innovative methods, technologies and creative ideas in the implementation of greening.

The principle of systematic measures is that the system of greening measures must be consistent and logically structured, implemented on a regular basis.

The principle of comprehensiveness of the conduct is that the system of measures of greening should provide ecological improvement of all spheres of human life.

The principle of voluntariness stipulates that the system of greening measures should be based on the personal will of the subjects. What should be the consequence of environmental education, ethical standards, social prestige, economic incentives and more.

The principle of timeliness of measures implies that the system of measures should be based on the receipt and processing of environmental information in order to respond in a timely manner to crisis situations and to form a system of measures to prevent negative manifestations.

The principle of coherence is that the system of greening measures at all levels (international, national, regional, local) must be coordinated, coherent and form a single program).

On the basis of the conducted research we can determine the functions of greening:

- protective;
- regenerative;
- educational;
- integrational;
- transformational.

The main functions of greening determine its content and essence, form a general idea of the place of greening in the social sciences. Therefore, the protective function provides for the improvement, protection and preservation of the environment. In turn, the regenerative function is the restoration of the state of the environment and natural potential, the return to environmentally acceptable indicators of socio-economic and environmental development. With regard to the educational function, it involves the formation of a social consciousness and culture, based on a caring attitude towards nature and the pursuit of environmentally acceptable and safe functioning. The integration function provides for a system of measures, which implies adaptation, mutual harmonization and maximum approximation of socio-economic and environmental systems. Finally, the transformation function is the transformation of all forms, methods, types and modes of human activity into environmentally friendly and safe ones.

The main subjects of greening are international organizations. In today's world, the influence of international institutions, especially supranational ones, is very felt. The impact of international organizations is quite significant. This is an important role for the UN and its specialized agencies: UNESCO, the IAEA, ECOSOR, the UN Commission on Sustainable Development and other intergovernmental organizations. In addition, these organizations have significant financial resources and can independently finance most of these tasks.

Also, the subjects of greening include the state. It is the state authorities that

should determine the direction and strategy of further development. It is a question of legal support of greening, formation of the appropriate state incentive mechanism and provision of greening.

NGOs also play an important role in the system of environmental actors. At present, public pressure or the promotion or promotion of greening by the public plays a very important role. In the era of information technology development, public opinion has a significant impact on the image of business entities, and especially on goodwill and market capitalization. Therefore, the growing role of NGOs and environmental actors can be noted.

Enterprises of all types, sizes and forms of ownership are considered as subjects of greening. This is the main link in the system of economic relations. Despite the large number of environmental programs and the implementation of environmentally-friendly measures, their end result and effectiveness will depend on the entrepreneurs themselves.

The following components were attributed to the objects of greening: thinking, behavior, activity, relationships. Thinking belongs to the main objects of greening. Because thinking is the process of transforming facts, information, emotions, etc. into relevant knowledge. Thinking is manifested in the form of ideas and concepts. In turn, ideas related to the environmentally sound existence of mankind are the basis for greening thinking, which ensures the acquisition of relevant knowledge. The knowledge system shapes science, which is transformed into educational programs, scientific concepts that become the basis of environmental, economic and social policy and transform into innovation (Fig. 1). The greening of mentality is at the heart of the whole greening system because it forms the intellectual basis of greening.

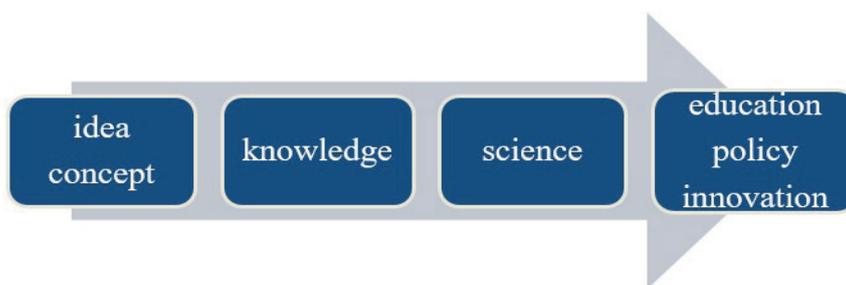


Fig.1. The greening of mentality.

Behavior is also attributed to greening objects. Behavior means a set of sequential actions or a system of actions. That is, the study of social behavior as the basis of human existence [2]. One can unequivocally agree that the driving force behind behavior is need and motive. Accordingly, we assume that the greening of thinking is based on the needs and motives of public relations actors in accordance with environmental requirements. In turn, the greening of behavior is a system of individual action, based on an awareness of the leading role of nature in human life and concern for the environment.

The object of greening is also the activity, namely, all kinds of human activities aimed at improving the reproduction, protection and use of environmental resources [3]. As a philosophical category, activity is the process of actively engaging the subject with the object, in which the subject satisfies his or her own needs and goals. Accordingly, such interaction in any form is the object of greening. Because in the process of such interaction (human-nature, economic system-ecological system) the main negative impact on the environment is manifested. Activities are divided into the following types: cognitive, practical and aesthetic. Accordingly, special attention should be paid to the cognitive and practical, as these categories are subject to greening. Greening of aesthetic activity can take the form of cognitive and propaganda films, TV programs, talk shows, etc., which highlight the need to preserve and protect the environment, conduct the greening of the economy and other spheres of life, and form public opinion on a caring attitude towards nature.

Relationships are also the object of greening. These include relationships such as inter-organizational and intra-organizational, formal and informal, horizontal and vertical communications, and the like. We also include the concept of environmental ethics in social relations. Which manifests in respect for and promotion of the right of everyone to an environmentally friendly environment by limiting the destructive impact of the individual on the environment.

We count that there are the following forms of greening:

- knowledge, science;
- program, policy;
- method, way;
- function.

Such structuring is carried out on the external manifestation of the content of the concept of greening. This means that the manifestation of greening is the concepts, paradigms, scientific theories based on scientific research and forming the prospect of further innovative development, generation of new ideas and appearances of new technologies.

Further transformation of these concepts and theories is realized in the form of environmental policies and programs. So these are policy tools, especially economic ones, that prevent the environmental degradation and stimulate its improvement [4]. They may be manifested internationally (United Nations Environment Program, international environmental cooperation agreements), national (environmental policy, national environmental and development programs of individual territories), regional (regional development and environmental programs) and local (measures on the ecological modernization of production, environmental protection) levels.

The practical aspect of greening is presented in the form of way and method. Greening can be a way of transforming economic systems into environmentally sound and a new way of social development. For the purpose of transformation and modernization of socio-ecological-economic systems in accordance with environmental requirements, we consider the necessary allocation of greening also in the form of function. That's

why, greening can take the form of manifestation as a species function of a particular system. For example, economic security systems. In this case, we consider greening as a component of the system, which has the characteristics and aims to maximize the approximation of the characteristics of the system to environmental requirements.

In the process of structuring greening, directions, methods and methods of greening should be considered. Areas of greening are kind of strategic guidelines and ways of developing socio-ecological-economic systems. Because of that we propose to identify the following ways of greening: elimination, prevention, improvement (innovation). According to the established directions of greening, it is possible to distinguish ways or ways of greening, which is a continuation and concretization of greening directions. Accordingly, the methods of greening can be as follows:

- limitation of the use of resources;
- economical use of resources;
- voluntary restriction of supply and demand;
- recycling and recycling;
- elimination of consequences of ecological catastrophes;
- improvement of machinery and technologies (treatment facilities);
- creation of new techniques and technologies;
- search for alternative, interchangeable resources;

It can be concluded that any direction of greening is presented in several ways. For example, liquidation involves greening in a way that eliminates the environmental impact that can be manifested: eliminating the consequences of environmental disasters, recycling and recycling.

Let's turn to greening methods. Methods of greening can be considered a systematic system of actions and processes that must be implemented to achieve the goals and objectives of greening. Finally, consider the methods of greening:

- organizational and economic (various ways of economic stimulation, social motivation and public conviction, state programs, environmental and economic policy, etc.);
- socio-psychological (a system of cultural, ethical norms of psychological beliefs or other means that have an ecological orientation and direct human consciousness to social responsibility for the state of the environment);
- control and administrative (restriction or prohibition of the use of certain resources, a certain type of activity, goods, etc., as well as a system of penalties and penalties, which is supposed to eliminate the negative effects of ecodestructive impact on the principle of "polluter pays");
- environmental (the system of actions and measures embodied in environmental policy, environmental and economic development and sustainable development programs; they ensure environmental constraints, rational use of resources, environmental taxes, subsidies, quotas, eco-labeling of products, etc.);
- institutional (state and legal regulation of ecologically safe activity, system of normative legal acts guaranteeing protection and preservation of environment, legal provision of stimulation of ecologically safe functioning and encouraging improvement

of ways, forms and ways of effective interaction of man with nature);

Conclusions. Effective functioning of the ecological and socio-economic system is impossible without developing a system of measures to overcome global environmental problems. Because some of these negative manifestations are not controlled and predicted. There is a need to develop an effective mechanism for overcoming these problems. One of the ways of solving this issue and the main direction of the further development of humanity is the greening of social development and all economic, social, spiritual and environmental processes.

It can be argued that the concept of "greening" is complex and multifunctional. Accordingly, a systematic approach was proposed to formulate the definition of this concept and its place in the system of socio-economic sciences. The study identified the main conceptual provisions: the purpose, goals, objectives and principles of greening. This made it possible to structure this concept according to certain features (methods, methods of subjects, objects, forms of manifestation). Conducted structural and functional characteristics of the concept of greening suggests that it should be considered depending on the levels and areas of application of this concept, as well as depending on the types of human activity. However, more thorough research, directions, methods, methods and classification of types of implementation of greening require. We believe that special attention should be paid to the consideration of this concept through the lens of ecological and economic security.

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THE ROLE AND PLACE OF THE HUMAN FACTOR IN THE MODERN EVOLUTIONARY ENVIRONMENT

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Annotation. *the article is devoted to the issues of the current state of the progress of the world. The innovation development changes society. Technological growth requires fully new skills of employees and completely new approaches in HR..*

Key words: *technological growth, the modern avant-garde technologies, the basic skills of the modern employees, the labor market, the labor organization.*

The beginning of the XXI century is characterized by fundamental changes in scientific and technological progress, which dramatically change the priorities of society in all spheres. The information revolution, also called innovative, intellectual, is changing the economy so much that significant transformations are evident at all levels. Technological innovations lead to a revolutionary breakthrough in the efficiency and productivity of labor, cause a new development of society, new requirements for training, the competencies of specialists, provoke fundamentally new social challenges.

The modern world is changing at a very fast pace, and above all by its quality features. Thus, the sectors that determine the development of the world today are fundamentally different from what it was at the end of the XX century. Today electronics, programming, computer modeling, neuroinformatics, laser technology, nuclear and other energy, electron-ion-plasma technologies, new materials, nanotechnology, biotechnology, living systems, modern transport, construction technologies, energy, ecology are relevant.

At the present stage of society's development, common means of labor (or conditions necessary for the implementation of the labor process) act as civilizational networks, that is, socio-economic infrastructures that provide "connection" of people to certain processes, opportunities, spaces. There are ordinary civilization networks - roads, transport, heating, water, sewerage, housing, buildings, fiber optic networks, logistic networks, engineering, industry and so on. Today, subtle civilizational networks are also defined - the Internet and information and communication technologies, modern education and systems of knowledge transfer, innovative environments and more.

The relationship between productive forces and civilization networks is expressed by the following formula: to a certain level of complexity, the development of productive forces is ensured by conventional civilizational networks, after which the productive forces characterizing new technologies can develop only on the basis of subtle civilizational networks. There is a limitation: subtle civilization networks are not possible with the low level of development of conventional networks.

The means of labor are increasingly moving away from the material objects due to which the processing of the objects of labor takes place. Current trends in the development

of means of labor are related to the shifting towards internal, individual competences, knowledge, motivations and values. Thus, today a person has the ability to be a carrier of modern productive forces. This position characterizes the inability to alienate the means of production from their carrier. Such dependence is a specific feature of the current level of development of these forces.

Another feature of the current level of development of productive forces is that land, buildings and equipment, as means of labor, can exist separately from the employee, but knowledge, competences, experience, connections, skill, motivation, values, as the means of labor, does not exist without man.

Thus, the specifics of modern productive forces include two elements:

- the means of production of new technologies and innovations (knowledge, skills, competences, motivations, values) cannot be separated from their carrier;
- the modern means of production are created due subtle civilizational networks (systems of translation of knowledge, competences, values, modern education, innovative environments).

This feature determines the tendencies of national economic development, namely: the necessary condition for technological modernization of the economy is subtle civilizational networks. That is why the national innovation system must conform to modern subtle civilization networks, promote their development and contain certain forms of public relations in which it will be possible to use means of production that are inalienable from man.

The new development of society is confirmed by the heads of two techno-giants Intel and General Electric, talking about smart cities. Smart cities will collect and process more and more data. This will use the growing Internet of Things and mobile devices. Yes, by 2020, everyone will be using 1.5 gigabytes of data a day. The hospital, equipped with basic smart technologies, will use 3,000 GB a day. The smart plant will consume up to one million gigabytes [1].

It is clear that the creation of modern technologies in almost any industry has reached such a level of complexity that the workforce of the former quality (as the ability to perform specified operations with the certain intensity) is absolutely impossible to use for this purpose.

Those who work in the field of innovation need the ability of creativity, self-organization skills, a wide range of knowledge, motivation to constantly learn and improve, the ability to find talented decisions, to work in a team. These abilities cannot be controlled by instructions and production technologies. These abilities are becoming the main means of production in the field of high technology today.

The Global Innovation Index is a global survey and ranking of countries by the level of innovation development. 80 parameters are used to evaluate the complete picture of innovative development. This year the Global Innovation Index compares the innovation activities of 129 countries and territories of the world. The report identifies Switzerland as the most innovative country.

In the Global Innovation Index of 2019 Ukraine received an index of 37.4 out of

100 in all indicators and ranks 47th. In terms of indicators Ukraine has the following situation: political and operation stability – 125 rank from 129, government effectiveness – 95, ease of starting a business – 48, education – 43, territory education – 37, information and communication technologies – 81, investment – 115, knowledge workers – 45, knowledge creation – 17, knowledge impact – 47, know diffusion – 47, creative goods and services – 91, online creativity – 43 [2].

The development of a national innovation system requires a quality innovation environment, which consists of some components.

First, it is a community of people who like to implement complex projects, ideas, find original solutions, work with the same people in creative groups. These people are carriers of a different type of thinking, namely entrepreneurial, research, and innovative.

Secondly, it is the only space - territorial, educational, communication, project, ideological, research. Horizontal connections prevail in this space, creating the opportunity for high mobility of its participants. High mobility determines both the great mobility of new ideas and the intensity of information exchange. Also, thanks to this single space and way of life, the productivity of the members of the community is ten times greater than the productivity of the ordinary hired employee.

When such a space emerges with such a community of people, various economic agents begin to be attracted to it, and the necessary institutions for the effective realization of productive forces begin to appear, and so on. The innovation environment is primary.

Thus, a community of people united by common motives and values, which develops in a single cultural space, creates an innovative environment that is a form of public relations that corresponds to the current level of development of productive forces (or, in other words, constitutes a national innovation system).

Third, recent studies of the development of the innovation process in different countries and in the whole world show that this process is non-linear, spontaneous, multifactorial. The main feature is that it requires the involvement of modern scientists and educated professionals. This feature is also indispensable, which determines the main trends of the process of training, advanced training and retraining.

The issue of modern education is complex and multifaceted. Higher education holds a special place in the development of a post-industrial economy. Any innovation is created by an employee, who must have a certain and fairly high level of knowledge, skills and abilities that can only be achieved through an effective education system.

New economic conditions require that educational institutions (education) and leading companies (business) find as many “intersection lines” as possible, establish effective cooperation, and implement joint production training projects. Higher education institutions should focus on the introduction of standards and techniques of so-called business education, when the basic education is built on the acquisition of knowledge and skills, which can be used to solve specific production (business, technological, etc.) problems. After all, the management of such companies can not wait for the "traditional education" to understand the challenge and rebuild according to the requirements of the time (this may take years, taking into account the time of study at the university).

In today's environment, leading companies have to take care of the development of corporate systems of industrial training, given the demands of a particular company or even its departments.

The modern concept of development highlights only those innovations that are related to the renewal of the educational process, its internal substantive and functional changes, and transformation into something new. Moreover, in the cases of development, we are talking about increasing, time-driven and managed qualitative transformations of the content of learning and educational activity (values, goals, system, process, result).

The cumulative nature of development' contributes to the introduction of pedagogical innovations and the regular formation of a new level of organization of the educational process. Such processes include improving the quality of education and culture of communication between teachers and students, the development of library and information services for students, the introduction of distance learning, the application of new pedagogical principles and high technology teaching and so on. In the process of introducing innovations, there are cases of divergence of the educational process, as well as convergence - combining different directions of learning into a single process.

Thus, the activation of the creation of innovative environment in Ukraine requires the development and improvement of such components as regulatory and organizational support, infrastructure and Internet support, investment and scientific base, commercialization of technologies. Understanding the role of the human factor and improving the macro-level human resource management system are very important too. At the micro-level, HR management must take into account the demands of time, and revises and completely changes the old paradigms of relations between employers, managers of different levels and employees.

The most important features of the modern process of improvement of HR is the creation of trust in the enterprise, which leads to the extension of the powers of performers, encouraging dissent, decentralization and allows to change the forms of control, namely, its narrowing and replacement on information. Joint economic decision-making promotes a holistic view of problems and a holistic approach to human potential in relation to strategic enterprise settings. An atmosphere of mutual trust creates a corporate culture of an innovative type that is an indispensable part of the modern HR process.

A decisive factor in the socio-economic development of society is also the modern stage of scientific and technological progress, which accelerates its movement, and fundamentally changes the world space, worldview of mankind, traditional productive forces and productive relationships, profoundly influences the human factor, organization of labor, etc.

Computer-information technologies are an important component of the modern economy, which is called as the digital economy. Effective use of information makes it possible to maximize the productivity of production, where the main factors are automation and communication. Today, innovation and investment development requires electronics, programming, computer modeling, neuro informatics, laser technology, nuclear and other energy, electron-ion-plasma technologies, new materials,

nanotechnology, biotechnology, living systems, modern transportation, construction technologies, energy, ecology, etc.

According to the World Economic Forum in Davos (2016), the Fourth Industrial Revolution is fundamentally affecting the labor market [3]. In the next 5 years there will be a radical change of professions, that is, the skills required by the market for decades will become obsolete. According to estimates, in 2020, about 35% of modern manufacturing skills will be changed. More than 47% of jobs will be automated. There will be new jobs that do not exist today but will be normal in 5 years [4].

The World Economic Forum in Davos in 2016 identified key requirements for future professionals that will affect employment, professional skills, recruitment in various industries and regions. Such a skill as a complex multilevel solution to problems, which testifies to the broad outlook of person, his professional knowledge and atypical thinking is in the first place. The next is critical thinking that allows a person to question existing rules and change circumstances. Creativity is important in a broad sense, allowing the person to have a non-standard approach to everything, and, most importantly, to see what is not yet. The team approach in organizing work requires the ability to manage people, as small creative and production teams will be created to meet operational challenges that require both communication and emotional intelligence. The ability to form person's own point of view, make decisions and be responsible is essential. In today's fast-changing world, it is important to immediately switch to different problems, to think about several tasks at one time, called cognitive flexibility [5].

According to experts in the historically specific terms, the stage of technological revolution, information, information and technological passed and the stage of information and electronic revolution began.

This revolution is due to the fact that modern industrial technologies are fundamentally changing with the help of computer-information technologies, biotechnology, artificial intelligence, 3D printers, living systems and more. All these different things come together and the brand new advanced technologies appear, and society is not always ready for them. This is a complex, contradictory, not well-defined way of development of society today. We must understand that the process of transition of human society to a new stage of civilizational development has begun.

Modern advanced technologies testify about the fundamental changes in the development of productive forces, which are based on different principles of production functioning. These principles are related to the fact that new technologies imitate the actions of the human brain (computer technology, robotics, neuro informatics), the actions of nature (biotechnology, living systems), which dramatically changes the understanding of the role of man in the modern world.

Advanced technologies let completely change the attitude to such indicators as productivity, labor intensity of production. As employees at enterprises with such technologies are almost scarce, then productivity increases tenfold. This indicator requires a certain amount of modern professional knowledge, constant self-improvement, professional skills and respectful attitude to modern expensive equipment from

employees. In addition, these technologies significantly reduce the duration of the production cycle, because they operate in the regime 24/7 with maximum speed, which helps to reduce the cost of production and significantly improve its quality.

Advanced technologies based on processes (biotechnology, electro-ion-plasma and other processes) are now called machine-free. Such technologies enable rapid adaptation to the requirements of today. Adaptation of these technologies to constant change is an important characteristic because it let quickly take into account the needs of both production and people.

Because such a conversion is incorporated into a modern production program, it can be implemented promptly depending on the requirements and, very importantly, almost instantly, which saves considerable time and allows the company to be in the lead all the time, producing small batches of competitive products, constantly adapting to the demands of the times and the constant changes of consumers.

Important features of avant-garde technologies are: a resource-saving way (based on the use of synthetic and composite materials); environmentally friendly (closed production cycles with reuse of industrial waste, wastewater treatment); reliably controlled to achieve the desired product quality based on the application of electronics achievements; required a minimum amount of live labor and employees. The latter is an example of complex automation with the help of robotics complexes, rotor lines, flexible production systems, modern transport, energy, where the functions of employees are only control over the functioning of automatic systems and their adjustment. The main workplace is a controller with programming skills and a thorough understanding of the complete algorithm of the entire process.

Conclusions. The Ukraine is lagging behind in the accumulation of digital assets, in the adoption of digital services, in the ability of any company to use digital technologies. These components are vital and they determine the world economic development.

Today, much is being done to improve the situation in Ukraine. The Strategy of the development of the sphere of innovative activity for the period until 2030 was adopted in 2019 [6]. This document highlights the development of an innovation-oriented economy. The goal of the Strategy is to build a coherent national innovation ecosystem to transform creative ideas into innovative products and bring them to market. Determination of specific financing mechanisms, creation of necessary specialized institutes of e-government, availability of qualitative human factor, and appointment of those responsible for implementation will contribute to the development of Ukraine.

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IMPACT OF LEADERSHIP POTENTIAL ON CHANGE POTENTIAL

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Annotation. *The current paper puts forward the following hypothesis: leadership potential is the key to the effectiveness of changes taking place within business structures to ensure their functioning in the markets. In this context, we conducted research on leadership potential of the business structures operating in Ukraine. The following objectives have been specified: 1) to analyze and evaluate the development of leadership potential at Ukrainian enterprises and develop its regulation; 2) to provide tools for the enterprise change assessment in the dynamics by means of leadership potential. Fifteen enterprises of the textile industry of Ukraine have been involved in the research. We have based our analysis on a random sample of 300 respondents.*

The analysis of the dominance of the activated Change Management System conducted on basis of Resultant Leadership has revealed that leadership potential is the key factor for change. It establishes an integrated connection between all subsystems of the enterprise potential to be subject to change. Our research suggests that leadership potential is a socio-psychological characteristic of a person that reflects the individual's ability to successfully lead a situation. The level of leadership potential determines the application of other functional potentials of the business structure. The findings of the study were introduced to five Ukrainian enterprises. The current research is of practical importance for various industries and the state as a whole.

Key words: *leadership, enterprise potential, leadership potential, change potential.*

Introduction and setting of the problem. In a modern business environment, leadership is considered to be a driving force. XX-XXI centuries are marked by issues of the conceptual and practical value of "leadership" and the "psychology of leadership", but prevailing research results have rather theoretical than practical value.

The problem of leadership is still relevant and has not been resolved to the end. Nowadays it is necessary to rethink the following issues:

I. Investigation of the "leadership potential" issue.

II. Peculiarities of leadership potential formation in the business structures and the dynamics of its change.

III. The impact of leadership potential on the efficiency of organizational change management in business unities of different forms of organization.

Analysis of the newest researches and publications. The purposes of the current study are to formalize leadership potential as a key element of the potential for change, ensuring the effectiveness of the business structures, and to develop a methodological approach to the business entity leadership potential diagnosis. Most of the existing definitions are based on

the study of a leader's manifestation patterns and the implications of leadership. Nowadays, the development and integration of psychological science in management highlight the following issues – 1) how to create leaders in society and 2) how to leverage their potential in the business structures management. The gurus of management and psychology of human resources management convincingly prove that enterprises are managed not by systems and technologies, but by a person who ensures the development and existence of certain organizations for the sake of own values and goals, using own mental abilities, business qualities, knowledge, and competencies [1,2]. Studies on the "leader" and "leadership" concepts underscore that different sciences provide own interpretation of the concept of a "leader", in accordance with their specifics. For instance, in the philosophical literature, the term "leader" is considered very rare, one-sidedly and superficially. A leader is defined as the most authoritative member of an organization or a social group.

Personal influence allows a leader to play a key role in various political, moral and social situations; the authority of a leader is informal and occurs spontaneously [3]. Sociology and economics consider a leader as a group member who carries a great authority and influence with any team, and who is able to lead the group; a person who due to his/her personal qualities has a significant influence on the members of the social group [4; 5]. Political science defines a leader as a person who heads a political party or other socio-political organization [6,7]. In psychological and pedagogical science, the concept of a "leader" is considered quite broadly: a leader is defined as a member of a group who is capable of exerting a special influence on the behavior of other participants in significant situations; a member of a group with the highest status that recognizes the right to make decisions in the significant situations for a group; a person who, due to his/her personal qualifications, is capable of displaying initiative, has a momentous influence on members of a social group [8].

Most definitions are based on the research of both the leader's behavioral and manifestation patterns and the consequences of leadership. Integration of psychological science in management accentuates the problem of how to mold the leaders and how to leverage their potential in the business structures management. In this regard, we dwell on the study of the Italian psychologist A. Meneghetti whose findings are considered to be noteworthy. [2]. Meneghetti's position is expounded in three directions of observation and description: in the parameters of scientific psychology, economic experience, and the fundamental criterion, discovered by ontopsychoLOGY and used by all branches of scientific knowledge and practice. According to Meneghetti, on the one hand, a leader is the head, personality, personality-vector, the one who controls the actions and is able to synthesize the context of relations. On the other hand, a leader is the one who builds the function, improves and rebuilds it when necessary as a craftsman. A leader knows how to establish a relationship, gaining the benefits and obtaining the result. A leader is a person who sets the goal, finds the means, resources, and people able to achieve it. [2, p.21]. Such an interpretation of the notion in many respects suggests that a leader should be a manager. However, Meneghetti's theory puts forward the idea that successful organizations and/or any business structures require not only top executives as leaders,

but leadership within the personnel of the enterprise at large. In fact, the results of the research show that the success and effectiveness of enterprises directly depend on the relative weight of leadership potential of its personnel.

Taking into account all mentioned above, we have put forward the following objectives for the current study: 1) to formalize the leadership potential in the system of the potential for change within a business structure; 2) to investigate the main tendencies of the change dynamics in leadership potential at Ukrainian enterprises; 2) to propose tools to assess the change dynamics in leadership potential in the context of effective change management introduction. Fifteen enterprises of the textile industry of Ukraine were involved in the research. We based our analysis on a random sample of 300 respondents.

Purpose and objectives of the article. The actualization of leadership as a new managerial paradigm that corresponds to modern realia is determined by the existing social tendencies, the transformation of values and organizational structures and by the crisis of the prevailing administrative model of management. Nowadays, it has become axiomatic that the personnel is considered to be the key element of any enterprise's efficiency. The authors have conducted research on the potential for change and leadership potential at Ukrainian textile industry enterprises within the framework of the activity of the "3S" Consulting Company. The research results make it possible to state that the leadership potential is the tool for the staff and management assessment during the change era. As a scientific problem, it is necessary to highlight what leadership potential exactly means and to find out the methodological approaches to the integration of leadership potential assessment into the overall enterprise potential.

Main results of the research. The studies of conceptual theories on the business structures potential [11, p. 19-32, 12, p. 122], on the one hand, demonstrate the correlation between leadership potential and the potential of the particular enterprise, on the other hand, identify leadership potential in the context of practical application of leadership in management of the business structures. Investigating the influence of leadership potential on the potential for change, we took a closer look at the gist of leadership potential. The concept of "potential" naturally took an important place in the categorical apparatus of the management theory. However, its categorical apparatus requires the notion of "leadership potential" for further development of this theory, The etymology of the word "potential" is of Latin origin and means "power" or "hidden possibilities" that in economic practice may come true become through labor. So, if "potential" is referred to as a hidden opportunity, the leadership potential is considered as the ability of the individual to acquire leadership competence. Effective management requires the perception of to what extent leadership potential of the personnel (specialists and managers) will allow a company to make effective change. It is also important to understand how the structuring of leadership potential will affect the structure of the potential for change, inasmuch as the enterprise's potential for change is also a certain set of possibilities of functional and resource composition.

Our research suggests that leadership potential is a sociopsychological characteristic

of a person, which reflects both situationally stipulated and situationally independent individual's ability to successfully conduct leadership. The level of leadership potential of certain professionals or managers determines the manifestation of other functional potentials. Leadership potential is presented in every structural element of the enterprise's potential. Though the finances (financial potential), the quality of materials (resource potential), and the features of the organizational structure of management (organizational potential) determine the functions of different potentials, it is a person with some leadership potential who carries out these functions. In order to investigate leadership potential we have generalized existing methodological developments that meet such criteria as objectivity, purposefulness, validity, effectiveness, etc. In order to investigate the proposed axioms, we have chosen the textile industry enterprises of Ukraine. The analysis of statistical data [10] made it possible to identify a group of leading and well-known enterprises in Ukraine: LLC "Textile Contact", Concern "Yaroslav", PJSC Ukraine (Zhytomyr), PJSC "Cherkassy Silk Factory", OJSC "Ternopil Association "Texterno", OJSC "Rivnelon", LLC "Lubawa-Grace"(Cherkasy), PJSC "Knitting Company "Rosa" (Kiev), PJSC "Sofia" (Brovary), etc.

How does the success and activity of enterprises operating in the textile industry correlate with the leadership of their managers? Who are the captains of the textile industry in Ukraine? There are some famous Ukrainian designers who gained the success in the world fashion industry (Diana Dorozhkina, Andre Tann, Lilia Pustovit, Irina Karavay, Oksana Karavanska), but their success results from their own accomplishments and has nothing to do with the creation of a successful company. In order to answer the above-mentioned questions, we have conducted the research of leadership potential of the Ukrainian textile industry enterprises. Monitoring and control of leadership potential of business entities were based on the use of calculation methods and techniques of economic analysis, mathematical modeling, which ensures accuracy, efficiency, and reliability. The analysis of leadership potential involves a combination of research methods for leadership potential: observation; intuition, sensation; interviews, and testing: * "Forma Mentis" test, * 6 drawings test, * Interview. Particular attention in the study was paid to leadership potential and to evaluate the possibilities of its application in management.

It is necessary to mention that the study of the leadership potential structure and the study of the peculiarities of its formation made it possible to structure it by the main constituent elements with their further integration into the overall assessment of leadership potential. Thus, the testing of the managerial personnel and specialists of each enterprise (the following tests have been conducted: 'Forma Mentis', 'Myers-Briggs Personality Type Indicator', Shalom H. Schwartz. Survey) allowed us to identify the main three blocks of leadership potential [13,14]:

- psychotype of personality in 16 classic personality types (PT) [15];
- value orientations (development and improvement (I), focus on the result (R), the natural level of leadership potential (NLLP), independence (Ind), initiative (Int), adherence to traditions (T);
- personality potential (responsibility (Rsp), autonomy (A), will (W), focus on

problem solving (PS), ability to collaborate with others (C).

Grouping and statistical processing of the survey results enabled us to obtain aggregated values of indicators for enterprises that were investigated on the whole (Table 1)

Table 1

Results of research on the level of leadership potential at Ukrainian enterprises by constituent elements

Indicators	Enterprises									
	E1		E2		E3		E4		E5	
	M	S	M	S	M	S	M	S	M	S
1. Personnel categories										
2. Psychotype	0,6	0,4	0,45	0,32	0,33	0,28	0,73	0,45	0,83	0,75
3. Value orientations:										
NLLP	0,62	0,38	0,38	0,28	0,45	0,32	0,72	0,42	0,72	0,52
R	0,57	0,45	0,48	0,38	0,54	0,38	0,67	0,48	0,67	0,58
I	0,63	0,25	0,29	0,19	0,63	0,29	0,63	0,39	0,63	0,49
Ind	0,4	0,45	0,47	0,43	0,4	0,37	0,6	0,47	0,6	0,47
Int	0,6	0,3	0,4	0,3	0,6	0,5	0,6	0,5	0,6	0,5
T	0,82	0,65	0,68	0,55	0,78	0,58	0,72	0,48	0,72	0,48
4. Personality potential:										
Rsp	0,73	0,34	0,39	0,26	0,71	0,29	0,73	0,59	0,73	0,59
A	0,79	0,45	0,47	0,37	0,74	0,37	0,79	0,47	0,79	0,47
W	0,65	0,46	0,49	0,39	0,63	0,49	0,65	0,69	0,65	0,69
PS	0,84	0,4	0,78	0,58	0,81	0,68	0,84	0,38	0,84	0,38
C	0,44	0,45	0,55	0,51	0,44	0,65	0,64	0,75	0,64	0,75
5. Leadership potential										
	0,65	0,46	0,5	0,39	0,62	0,43	0,7	0,51	0,7	0,51
	0,6	0,4	0,45	0,32	0,33	0,28	0,73	0,45	0,83	0,75
	0,62	0,38	0,38	0,28	0,45	0,32	0,72	0,42	0,72	0,52

The analysis of the leadership potential complex indicator values also required the establishment of a range of the leadership potential integral indicator levels. O. Babina has managed to set the mentioned range in her dissertation work [16]. For a better understanding of leadership potential, the intrinsic characteristics of all components and the degree of interaction within each group have been scrutinized. Having scrutinized the modeling experience, the authors made the decision to apply the models of longitudinal (panel) data. The research results have been presented in the form of multidimensional correlation matrices and graphs - correlation constellation based on longitudinal data using Statgraphics Centurion statistical package (SPSS 22). The value of the correlation coefficient and the density of the connection have been traditionally determined by the ‘Chaddock’s Scale’, where the correlation coefficient has the following values: 1.00 (functional connection); 0.90-0.99 (very strong); 0.70-0.89 (strong); 0.50-

0.69 (significant); 0.30-0.49 (moderate); 0,10-0,29 (weak); 0.00 (no connection). Since the research of leadership potential has been carried out on conditions of the personnel division into two categories: the managerial personnel and the specialists, the results of calculations are also presented in two categories.

To assess the value orientations of the managerial personnel the following factors have been identified: the natural level of leadership potential, focus on the result, development and improvement, independence, initiative, adherence to traditions.

The highest average value of the managerial personnel's value orientations is "Focus on the result", i.e, this factor is dominant, since its value is approaching 1. The following factors also have a significant influence on the value orientations: "the Natural level of leadership potential", "Independence" and "Development and Improvement", inasmuch as the average values of these factors are above the median. The highest average value of the specialists' value orientations is "Development and Improvement", i.e, this factor is dominant. The above-the-median average value is "Initiative". Such factoring fully corresponds to the qualitative characteristics, typical for the investigated group of the personnel of a lower management level.

The correlation research for the managerial personnel resulted in the following features (Fig. 1): there are 14 statistically significant connections between factors; seven factors have a reverse connection ("Initiative" and "Development and Improvement"; "Focus on the result" and "Adherence to traditions"; "Development and Improvement" and "Independence"; "Initiative" and "Adherence to traditions"; "Initiative" and "Independence"; "Adherence to traditions" and "Independence"; "Adherence to traditions" and "the Natural level of leadership potential");

- six factors have a direct connection;
- ten pairs of factors have a high and significant density of connection according to the Chaddock's Scale, which is a positive moment.

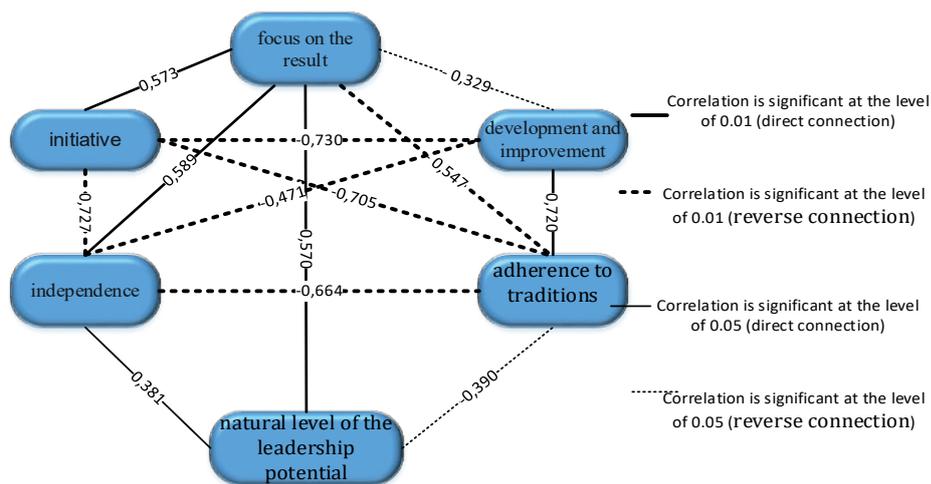


Fig. 1. Graph of correlation constellations of managerial personnel's value orientations

The "Adherence to traditions" factor has the biggest impact on the value orientations of the managerial personnel. Besides, all five connections that it forms are reversed, strong and significant. So, this factor has a negative context in terms of impact on the value orientations of the managerial personnel.

The correlation research for the specialists resulted in the following identified features:

- there are only eight statistically significant connections between the factors;
- three factors have a reverse connection ("Focus on the result" and "Development and Improvement"; "Development and Improvement" and "Independence"; "Development and Improvement" and "Initiative"),
- five factors have a direct connection;
- one factor has a high and significant density of connection ("Development and Improvement" and "Initiative"), the other connections have a moderate and weak density (Fig.2).

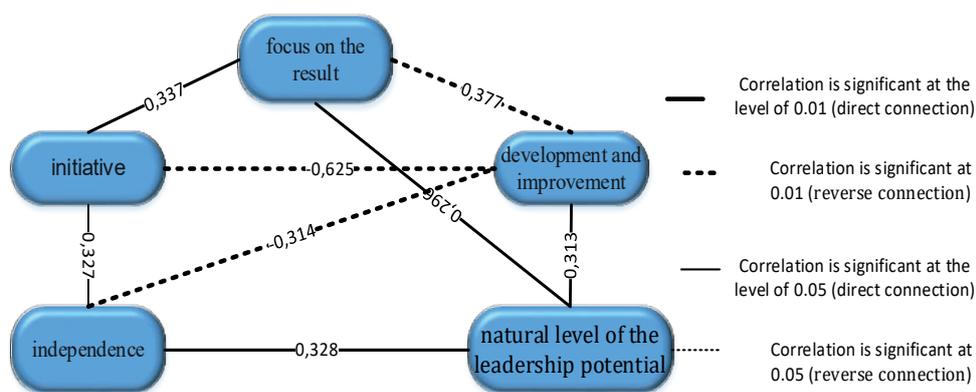


Fig. 2. Graph of correlation constellations of specialists' value orientation

Upon the completion of the correlation analysis, it has been discovered that the "Development and Improvement" factor has formed the number of connections with other factors. Most of them have the reverse connection.

In order to establish both the density and the connections between the indicators that characterize the personality potential of the managerial personnel, we have singled out the following factors: responsibility, autonomy, will, focus on problem solving, the ability to cooperate with others.

The highest average value of the personality potential of the managerial personnel is the "Focus on problem solving" factor, which is the dominant one, inasmuch as the crisis phenomena in the economy have intensified. Such factors as "Autonomy", "Responsibility" and "Will" have a significant influence on the personality potential, as long as the average values of these factors are above the median. The interaction of the factors in the group is presented in Table. 4. The results showed that there are only

five statistically significant connections between the factors, with two of them having a reverse connection ("Responsibility" and "Focus on problem solving"; "Focus on problem solving" and "Autonomy"), six factors have a direct connection. Separately, it should be noted that the density of connection in the correlation of factors is moderate.

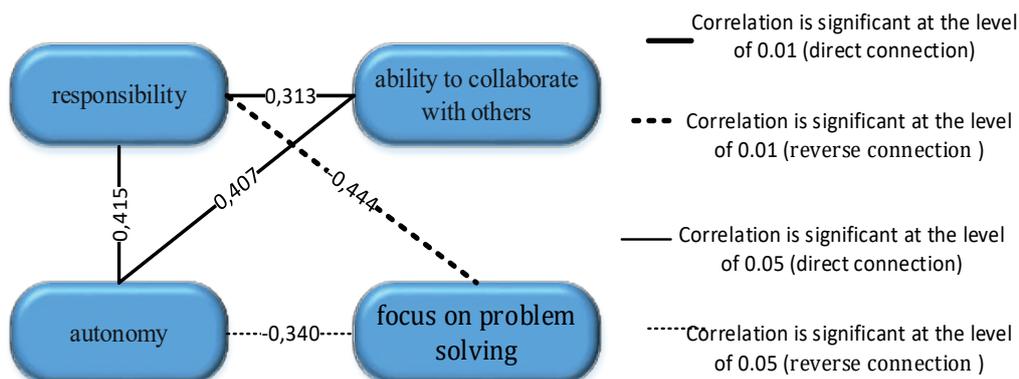


Fig. 3. Graph of correlation constellations of managerial personnel's personality potential

Upon the completion of the correlation analysis, it has been discovered that the "Responsibility" factor has formed the number of connections with other factors.

In order to establish both the density and the connections between the indicators that characterize the personality potential of the specialists, we have singled out the following factors: responsibility, autonomy, will, focus on problem solving, the ability to cooperate with others. The average values of all factors except the "Ability to cooperate with others" factor are above the median value, the range of variation varies from 0,94 to 0,2.

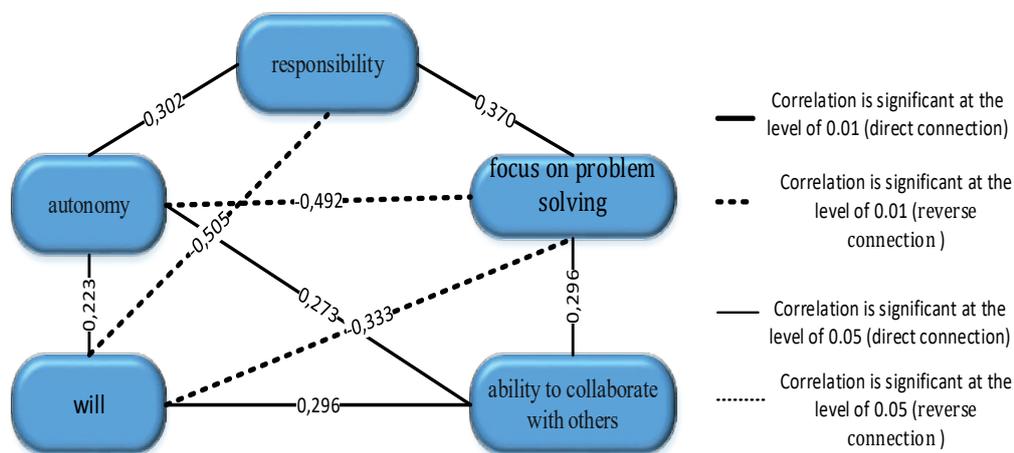


Fig. 4. Graph of correlation constellations of specialists' personality potential

The correlation analysis of the personality potential of the specialists demonstrated that the connections between the factors, increasingly, are moderate and weak. The connections between the "Responsibility" and "Will" are the densest, but they are reversed.

Generalizing the results of the analysis of the personality potential, we noticed that although the average value of the factors is high, the connections between them are weak and not significant.

The following stage of the analysis was to establish the density and connections between the indicators that characterize the psychotype of the personality in accordance with the Myers-Briggs Personality Type Indicator. (Fig. 5, 6) The legend to the Myers-Briggs personality types indicator is as follows: P - Perceiving i.e irrational; J - Judging i.e rational; E-Extraversion; I – Introversion; N – Intuition; S – Sensing; F - Feeling i.e ethical; T -Thinking i.e logical.

In order to conduct the analysis, we have selected 12 psychotypes. Analysis of the correlation matrix allows us to identify the structure of the connection between the set of factors and reduce the number of measured factors required for a sufficient description of leadership potential. We have aimed at establishing the number of optimal connections between the psychotypes, identifying the leadership qualities, and allocating the roles of employees in accordance with the personality type. The connection between the socionic psychotypes of personality has also been of tremendous interest because the personality of an individual is multifaceted and ambiguous.

By average values, the maximal variation has been observed in the 8th, 9th, and 11th psychotypes. The main feature of a qualitative classification is that classes or categories are not in any mathematical (quantitative) dependence. The top priority is a qualitative classification as a process where certain categories comply with more general ones, and, consequently, receive the appropriate features. In this case, the 11th psychotype has the highest average value.

The correlation for the managerial personnel revealed the following features:

- there are 56 statistically significant connections between psychotypes;
- almost all connections between psychotypes are directly connected, except for the connection between the 11th and 12th psychotypes;

There is a very strong constraint on the Chaddock's Scale between the psychotypes: 1st and 2nd, 2nd and 3rd, 3rd and 9th, 4th and 8th, 4th and 9th, 8th and 9th, 8th and 10th.

The correlations for the specialists revealed the following:

- there are 50 statistically significant connections between the psychotypes;
- almost all connections between the psychotypes are direct, except for the connection between the 9th and 11th, 9th and 12th psychotypes;
- there is even a functional connection in accordance with the Chaddock's Scale between the 6th, 7th, 11th and 12th psychotypes. There is very strong connection between the following psychotypes: 1st and 2nd, 2nd and 3rd, 2nd and 9th, 3rd and 9th, 4th and 6th, 4th and 7th, 4th and 8th, 4th and 9th, 8th and 9th, 8th and 10th.

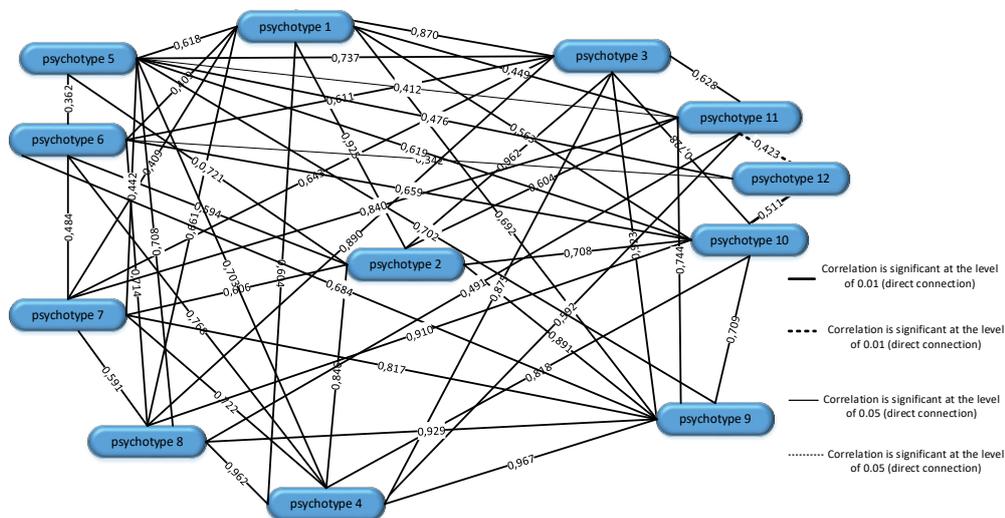


Fig. 5. Graph of correlational constellation of managerial personnel's psychotypes

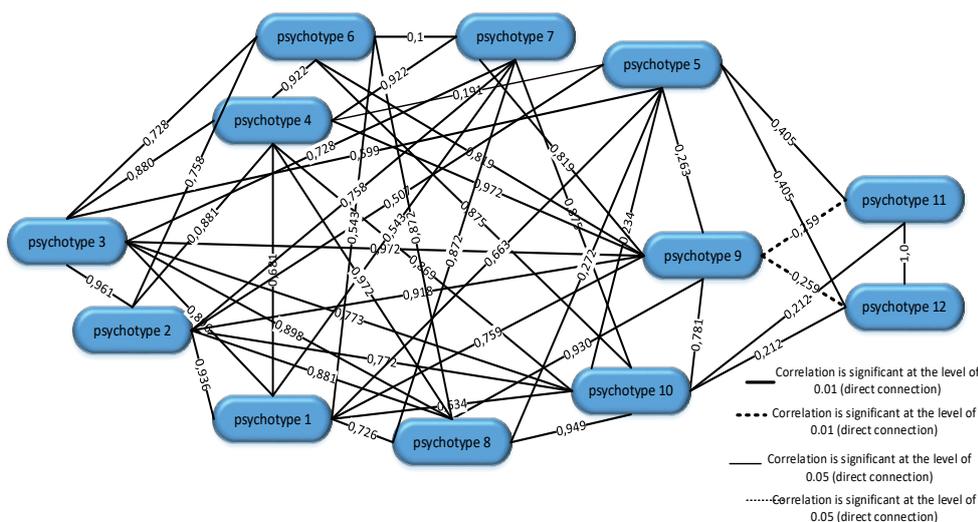


Fig. 6. Graph of correlational constellation of specialists' psychotypes

In order to visualize the relationship between the level of leadership potential and the level of the enterprise potential for change, multiple correlations have been applied.

Furthermore, we have researched the connections, the density of connections, not only by integral indicators of the enterprise potential for change and leadership potential but also calculated the effect the components of leadership potential (value orientations, personality potential, psychotypes of personality) have on the enterprise potential for change. The investigation of the managerial experience and practice at the textile industry

enterprises proves that the level of efficiency of the enterprises' activity depends on efficient application of professional and personal competencies by managers. Accordingly, a company will perform efficiently providing it effectively utilizes the leadership skills of its managers. Therefore, the search and research of the personal factors determining the efficiency of the company's and its managers' performance in conditions of change both in the external and internal environment are of particular importance.

In the course of the study, we have found out that the leadership qualities of the managerial personnel impact the managerial potential of the enterprise rather than other components of the overall enterprise potential. This conclusion is apprehensible, inasmuch as the leader-making components are very important for the system-forming element of the managerial potential.

The correlation analysis demonstrated that the connections between the factors, increasingly, are strong. The graphic interpretation of the correlation between individual psychological leadership qualities of managers and the enterprise potential (in terms of management activities) is presented in Fig. 5

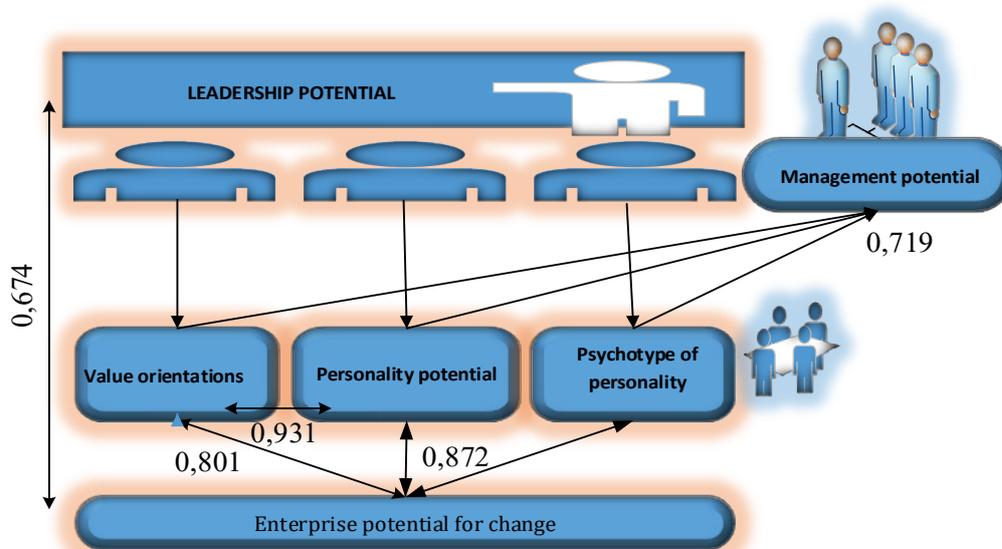


Fig. 7. Graphic interpretation of correlation between individual psychological leadership qualities of managers and enterprise potential

The managerial potential has a strong functional connection with leadership potential (0.719), which results from the fact that leadership is a certain milestone on the way of the personal growth in the managerial structure of the enterprise. The overall potential of enterprises has a strong influence on value orientations and personality potential (0.872 and 0.801 , respectively). Consequently a person's awareness of his/her role in the company's activity clearly set personal goals and priorities, job promotion

opportunities and participation in the process of management have a direct connection with the growth of the company's potential. We have found out that there is a direct strong connection between leadership potential and the company's potential for change at the level of 0.674.

Conclusions and suggestions regarding further researches. The research of the structure of leadership potential and the nature of the connections between its structural elements in the context of the managerial paradigm of the business structures functioning revealed that leadership potential is the key factor of productivity, which provides the integrated connection between all subsystems of the enterprise's potential. The results of the study made it possible to prove that leadership potential is a socio-psychological characteristic of the personnel involved in the processes of management that contributes to the effectiveness of the business structure performance. The level of leadership potential determines the application of another functional potential of the business structure.

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START-UP AS A TOOL FOR DISRUPTIVE INNOVATION

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Annotation. *One of the decisive indicators of competitiveness of the economy is innovative development. Innovation has its own embodiment infrastructure, called the innovation ecosystem. It consists of direct innovators (start-ups), investment and support institutions, and a state as a regulator. The current state of innovative development of Ukraine remains at a very low level, which is reflected by the latest positions in the leading world rankings.*

Key words: *innovation, start-up, business incubators, venture funds, ecosystem of innovation, disruptive innovation.*

We live in a world that the Americans call the VUCA (the abbreviation for volatility, uncertainty, complexity and ambiguity) world which is unstable, uncertain, complex and ambiguous [1]. This is the present-day world, and it is a very fun time for creative people, because old working models no longer work.

Today, the issue of innovative development is crucial for the future of Ukraine. Unfortunately, due to the difficult economic and political situation, not all instruments are available to our country.

The term "innovation" comes from the Latin "novatio", which means "update" (or "change"), and the prefix "in", which is translated from Latin as "in the direction", if translated literally: "Innovatio — in the direction of change". [2]

Innovation is not any innovation, it is only the one, which seriously increases the effectiveness of the current system. [3]

Innovation is the object of implementation or the process that leads to the emergence of something new.

In scientific lexicon this term was first coined by J. Schumpeter, literally meaning "the embodiment of scientific discovery, technological invention, a new technology or a new kind of product." In addition, innovation was considered by J. Schumpeter as a new function of production, its new combination.

The term "innovation" gained distribution in American management, but today it is also actively used in Ukraine. In principle, any socio-economic innovation, until it has received a massive, that is, serial expansion into the labor, production industry and management, can be considered an innovation.

In recent years there was a special kind of innovative business: risky or venture. These are primarily small firms that deal with spreading technologies in knowledge-

intensive industries, in the first place.

Innovation plays an extremely important role in the development of human civilization (e.g. known such phenomenon as "Kondratyev's waves") and, in particular, of each state separately. Correspondingly, the majority of the present-day states are trying to establish and continuously improve national innovation system to support the process of creating and implementing innovations.

Studies have shown that there are several sources of innovation. They can occur as a result of a whole set of efforts of a number of different agents, randomly, or as a result of the failure of the dominant system.

According to Peter F. Drucker, general sources of innovation comprise different changes in the structure of industry, in the structure of the market in local and global demography, in human perception, mood and sense of the amount of already available scientific knowledge and etc.

In the simplest linear model of innovation the producer of innovation is a commonly recognized source of innovation. This is an agent (person or company), who develops innovations with the aim to sell them later on.

Another source of innovation which is obtaining a wide recognition only now is the end user. This is an agent (person or company), who develops innovations for their own use (private or in the economy), because the existing products do not meet their needs. Economist Eric von Hippel has identified end-user innovation as the most important and critical. [4]

American inventor, known under the title "Father of Robotics", Joseph Engelberger, states that innovations require only three things: conscious necessity, competent people with the appropriate technology and financial support. [5]

However, innovation processes, as a rule, include identifying needs, developing competencies and searching for financial support.

Chain innovation model by Stefan Klein [6] makes emphasis on the potential needs of the market in the role of drive for innovation process and describes the complex and often iterative inverse relationship between marketing, design, manufacturing and R&D.

There are several classifications of innovations. The first classification is based on the object:

- commodity – the introduction of a new product;
- technological – the introduction of a new method of production;
- market – creation of a new market for goods and services;
- marketing – development of a new source of raw material supply;
- management – reorganization of management structure;
- social – implementing measures with a view to improving the lives of the population;
- environmental – implementing measures aimed at protection of the environment.

The second classification is based on the market-related essence of innovation:

- continuous innovation – improvements to existing products that do not make significant changes to the way they are used by consumers; [7]

- intermittent innovation (Eng. revolutionary, discontinuous, radical innovation) – completely new products, which require efforts of consumers in terms of adopting new habits on their use, but do not have a significant impact on previously existing markets; [7]

- disruptive innovation (Eng. disruptive innovation) – innovation that creates new market due to different values, which in the ultimately (and unexpectedly) apply to previously existing market and completely alterate it. [8,9]

"Disruptive Innovation" - this innovation is changing the ratio of values in the market, whereas old products become uncompetitive simply because the parameters which previously underpinned the competition are becoming unimportant.

Continuous innovation, as a rule, is innovation in technology, while disruptive innovation alterates entire markets. For example, the car was a revolutionary technological innovation, but it was not disruptive, since early cars were a luxury that did not have a significant impact on the horse-drawn carriage market. Transportation market, in essence, remained intact until the debut of cheap Ford Model T in the year 1908. Mass production of cars was a disruptive innovation, because it has changed the transportation market. Although the car itself did not constitute an innovation. [10]

"Disruptive innovation" model is the theory of Clayton Christensen, which he first introduced in 1997 in his book "The innovator's dilemma: how strong companies die with new technologies." [11]

This model can be used to describe the impact of new technologies on the functioning of the firm. Clayton Christensen studied the reasons due to which the biggest companies, worldwide leaders of the industry are rapidly losing their dominant position, stop being flagship, when new startups involving new technologies appear on the market. Everything changes at the moment when "subversive technology" finds its buyer who is willing to put up with the shortcomings of the new product and who needs new properties of this product. Having such a buyer, new technology starts to evolve, production volumes grow, and there comes a time when it starts to justify its name "a breakthrough technology" [12]. Examples of "disruptive innovations" are as follows: telephone (replaced telegraph), steamers (replaced sailing vessels), semiconductors (replaced electrovacuum devices), e-mail ("disrupted" conventional post).

From the moment of the release on the market, disruptive innovation goes through the different stages, which depend on the types of users. In order to understand how and with what speed innovative ideas and products are distributed, let us conditionally divide the way the product goes through according to the types of users:

Innovators (innovators) are loyal, that is willing to experiment and consume "raw" product, provide feedback, i.e. express wishes and point to the drawbacks of the product.

Relative innovators (earlyadopters) – people who also feel the presence of problems, but to a much lesser extent than innovators are able to accept new product. They also need the opinion of others to make them believe that the product really solves the problem.

The early majority (earlymajority) is a segment of more conservative consumers; their opinion about the innovation can be adjusted by using classical methods of marketing. For example, people who go to the store and ask about washing powder with

blue crystals.

Late majority (latemajority) – people who buy only tested and proven products.

Sloth (laggards) – that sector of consumers who buy innovative product only if they can not refuse to buy it. For example, in 1996, mobile phones began to appear in Ukraine and initially they did not have a short messaging service in them, however, even if desired, it is now difficult to find a phone without an integrated short message service.

Startups represent the companies that develop and innovate. Startup (eng.) is a recently created company (possibly officially unregistered yet, but seriously planning to become official) that builds its business on the basis of innovation or innovative technologies with a limited a set of resources, which has not entered the market yet, or is just emerging in the marketplace. [1]

The term "startup" is used especially often used in relation to Internet companies and other companies that operate in the field of IT. However, this notion is also common for other fields of activity.

Innovations, which form the basis of the business startups, can be both global (i.e. worldwide innovations), and local (that is, to constitute an innovation in one country, but at the same time in the other countries this technology is no longer innovative). An example of local innovative technology can be scoring technology for potential bank credit users based on the analysis of their credit histories. For Ukraine, this technology is innovative, whereas for the other countries, such as the US, it is no longer an innovation.

There is a variety of criteria and definitions for a startup company:

A startup is a company or temporary organization created to find a repeatable and scalable business model. The main product of the startup is in fact the company that eventually has to be sold. [14]

Startup is a newly established organization, which is engaged in the development of new products or services under the conditions of extreme uncertainty. [15]

Startup is a company which is in the initial stage of its activity; organized on the founders' funds and seeks to increase the capitalization along with developing the product in the hope that it will generate demand. [1]

Despite the differences in wording, it is easy to notice that in the heart of the concept of "startup" lies the concept of "innovation". It is impossible to create a startup without innovative ideas or technology. Startup is a tool for bringing innovations to the market, in the first place.

Thus, only a company that runs through the full cycle of development, from designing a prototype and fundraising to its market launch, can be called a startup. A company that will grow with the idea that at the end of its life cycle, it will be acquired by a larger company, or it will merge with other businesses, or become a joint-stock company.

Therefore, we need to consider the stages of the life cycle of a startup. A reduced classification of startup evolution stages is often referred to, whereby it undergoes 5 stages: seed stage, startup stage, growth stage, expansion stage and exit stage.

Sometimes a more extensive classification is used:

Pre-startup stage:

- Pre-seed stage
- Seed stage
- Prototype
- Working prototype
- Alpha-version of a project or product (alpha)
- Closed beta-version of project or product (private beta)
- Public beta-version of a project or product (public beta)
- Launching a project in operation or a product into production
- Startup stage
- Launch or early-startup stage
- Working with first customers, or late startup stage (first customers, or late startup

stage)

Post-startup stage

- Growth stage
- Expansion stage
- Exit stage

RE-IPO stage (when launched through IPO) [1]

A startup can not earn money right away. It takes time to develop a prototype, time to test the idea on the first leads and further refinement. Experience shows that the first 2-3 years of a startup require far more money than it can earn. This is the first phase of the lifecycle, the so-called "dead zone", when it simply absorbs resources without any profitability. But if the idea survives, then a rapid growth follows up. For example, if invested \$1 million during the first three years, the fourth year the company will earn \$15 million revenue.

Unlike a traditional business, a startup can not do without assistance or attract bank loans. No credit institution provides loans for research and development. So, the only way out for a startuper is to find an investor who will agree to invest in exchange for part of the business. The investor is not a creditor, he is a risk-sharing partner. There is no need to return investment funds, but in exchange for them, the founder loses the sovereignty of his/her business and must obtain approval from the investor in decision-making. Risks related to running an innovative business are so high that a specific infrastructure of organizations participating in the innovation process has developed, which may include business incubators, business angels and venture capital funds.

Business Incubator is an organization that provides, under certain conditions and for a certain time, specially equipped premises and other property to small and medium-sized enterprises that start their business in order to facilitate their financial independence [17]. A separate type of business incubators is innovative business incubators.

A business incubator is a structure that specializes in creating favorable conditions for the emergence and effective operation of small innovative (venture) companies that implement original scientific and technical ideas. This is achieved by providing these companies with material, information, consulting and other necessary services. [18]

The most important functions of business incubators are:

- leasing of offices / workshops, often (in some cities / centers) at the prices lower than market prices and with flexible extra space available upon request
- administrative and technical services (telephone, copying, conference / meeting rooms, secretariat, etc.)
- consulting / business planning for beginners and potential entrepreneurs. A wide range of other (consulting) services, technology transfer, seminars and training offers, etc. are also possible.

Business Angel (Angel Investors) is a private investor investing in innovative projects (startups) at the stage of the company creation in exchange for the return of investments and equity share (typically a blocking but not controlling interest) [1]. As a rule, the Angels invest their own funds, unlike venture capitalists who manage third-party money pooled in venture funds. A small but growing number of business angels are forming networks or groups to work together to find investment objects and to pool capital.

Venture Fund (Venture) is an investment fund focused on working with innovative enterprises and projects (startups). Venture funds invest in securities or shares of high or relatively high-risk enterprises with an expectation of extremely high returns. As a rule, 70-80% of the projects do not pay off, but the profit from the remaining 20-30% covers all the losses. [1]

The peculiarity of funds of this type is the legislative authorization to carry out more risky activities: absence or sharply reduced need for risk diversification; they are allowed not only to buy corporate rights, but also to lend to companies (for example, through the purchase of promissory notes). The only thing which is prohibited is to invest in the banking, insurance and investment industries.

It is advisable to involve different institutions at every stage of the startup development.

Given the sources of funding, the stages can be divided into 3 zones.

The first zone combines the seed and launch stages. At this stage, the idea should come to its logical conclusion, become a set of documents (business plan, terms of reference, etc.), in which all sides of the issue are transparent, comprehensible and attractive. The first prototype is then created. The prototype may be, for example, the design and functionality of the site. Funding at this stage comes from seeding capital, which has two main sources: business angels and 3F investors (ironic decoding of the FFF abbreviation which stands for "family, friends, and fools"). At this stage, the startup "burns" money and is in the "dead zone", so it is difficult for an entrepreneur to attract professional investment. Experts advise to manage their own money at this stage, or to look for an "angel" who is not a professional investor. The end of this zone is to break even.

The second zone combines the stage of growth and expansion. This is the stage of the growth of the company, profits, etc.; at the stage of expansion the staff increases, struggle for markets is enhanced, new branches are opened, etc. This is the tipping point when funds are essential. Here, in addition to promotion, the project management begins

to look for partners and clients. The project is already becoming a serious company working on its development. The third and last zone is the exit stage, it is also called a post-start stage. The one who has led the project from scratch to this stage should sell it, partially or completely, as close as possible to the highest value of the company. [19]

The latest and the greatest player in the field of innovation is the state. State regulation of the innovation process at the present stage is one of the main conditions for economic development.

Based on the facts and experience of the world, successful scientific and technical activities are impossible without a system of effective state support. The need for state regulation of innovation processes is preconditioned, first of all, by the scale of financial costs for research and the implementation of its results. Improvements in the processes of scientific knowledge are increasing the costs of research and development. New scientific results are being achieved by highly qualified and, therefore, highly paid personnel, with the advancement of the capital-labor ratio of the scientific field. Implementation of the innovations entails even more costs.

First, large expenses require expertise, patenting, certification of new products, etc., which is beyond the power of individual market operators.

Secondly, many innovations can be economically effective with an implementation scale beyond a critical minimum, and availability of sufficient market capacity. For example, the Pentagon-created Internet system is used by more than 44.8 million citizens in the United States alone. The work within the Internet system is a sphere of production activity for many companies, comprising program development, creating reference sites, catalogs, specialized and popular magazines, etc.

Thirdly, the isolated implementation of innovation leads to significant losses not only for the company, but also for the economy as a whole. In addition, there are innovative processes that are not commercially viable. These include basic scientific research, the results of which cannot be commercialized, as well as innovations aimed at meeting the needs of society as a whole (ecology, defense, law enforcement, etc.). The costs of these components of innovation processes are borne by the whole society.

These and other features of innovation processes indicate that an effective innovation strategy for the development of national enterprises cannot do without the support from the state being rendered.

The state creates favourable conditions for innovative activity, forming unified civilized rules and mechanisms that contribute to the development of all subjects of the innovation sphere. The main directions of state regulation of innovative activity include the following:

1. Accumulation of financial resources for research both at the expense of the budget and through the creation of special funds.
2. All-encompassing promotion of the development of science, including applied science, and formation of small innovative entrepreneurship (start-ups).
3. Formation of government contracts for R&D, which provide initial demand for innovation and then get spread in the economy.

4. Coordination of innovation activities.

5. The state promotes the cooperation and interaction of different institutions in the implementation of innovations through the formation of a single technological space (synchronization of the innovation cycle in time and space), which ensures the compatibility of innovations.

6. Encouraging the innovation process and innovation activity through competition, as well as the use of economic methods of direct and indirect action, such as: financial subsidies, benefits, insurance against the impact of innovation risks, etc.

7. Creating the legal basis for innovation processes through the formation of the necessary regulatory framework.

8. Staffing innovation through the creation of appropriate training programs in public educational institutions that would enhance the creative potential of the nation.

9. Formation of scientific-innovative infrastructure, information systems, advisory and legal services.

10. Institutional support for innovation processes through the creation of state organizations and units that carry out research and development and innovate in the public sector (defense, health, education).

11. Improving the social status of innovation activity through the promotion of innovators, ensuring their social protection, promulgating scientific and technological achievements.

12. Regional regulation of innovation processes through rational allocation and use of innovative potential.

13. Regulation of the international aspects of innovation processes through the definition of economic and innovation strategies aimed at international scientific and technical cooperation. [20]

Thus, as we can see, the role of the state cannot be underestimated. Although innovation is undoubtedly something that cannot be created administratively, in a planned manner, the favorable conditions for the emergence of innovation need to be fostered at the state level. Back in the day, each developed country adopted a parliamentary decision to hold a course for innovative development. Moreover, it is extremely important to understand that the regulation of innovation activity is not limited solely to the role of the state. For example, one of the factors that facilitate innovation is the appreciation of the resources. We know that in developed countries energy and even water have a much higher absolute price than in Ukraine. And the Norwegian government is deliberately raising the price of oil in the domestic market for entrepreneurs to adapt to the search for new energy-saving technologies. Human labor is the most important resource, so raise in wage is also an impetus for innovation. Although, according to neoclassical theory, the first stage of wage growth without productivity gains will inevitably lead to high levels of unemployment and bankruptcy of uncompetitive enterprises, but as the experience of countries that have undergone the "economic miracle" shows, a qualitatively new generation of innovative enterprises is formed in the next stage which take the national economy to a new level of development.

Therefore, we see that the state has the tools and levers of influence on the economy and innovative development in particular, which makes it crucial for the innovation process.

To recapitulate this study, the following conclusions can be drawn:

Innovative development in the modern world is a decisive indicator of the competitiveness of the national economy in the world arena. Innovation penetrates to all spheres of human life and has its own embodiment infrastructure, which is called the innovation ecosystem. The innovation ecosystem consists of direct innovators (startups), institutions providing investment and support (business incubators, venture funds) and the state as a regulator. The state's need for an innovation ecosystem is driven by both the need to stimulate it and the need to control the risks of the innovation process, including systemic, social and ethical risks.

The current innovative development in Ukraine remains at a very low level, which is reflected in the bottom positions in the leading world rankings. This is partly caused by the fact that the innovation industries and ecosystems are still immature, and partly by the general crisis and economic climate that is not conducive to entrepreneurship. Among the main problems of Ukraine are extremely high levels of corruption, inefficiency of public administration, uneven access to resources, poor quality of education. Among the competitive advantages, the first is human capital assets. Ukraine's status quo has been consistently worsening over recent years, and we are now losing our advantage in the form of human capital assets. This is partially explained by the outflow of highly qualified personnel, but in addition, Ukraine is experiencing a demographic crisis. We rank first in Europe in terms of mortality rate, and second in the world. According to forecasts, unless proper measures are taken, in 50 years the population of Ukraine will decrease to 12 million.

As a way to overcome the demographic crisis and at the same time enhance the innovation and competitiveness of the Ukrainian economy, it is proposed to foster startups focused on social impact, in particular aimed at preventing cardiovascular disease, which is mainly the cause of mortality with working-age population. This tool requires relatively little investment and is the key to intensive economic development, as it will give impetus to self-organization of the innovation ecosystem and further innovation process.

In addition to such urgent measures to overcome the crisis, a general economic recovery is desirable. What is needed for the resource economy to gravitate towards high-tech and production of the final product? Over the past three years, since the state's attempts to positively influence the development of innovative industries, such as information technology, began, it became clear that some tax benefits were not enough to create competitive advantages for Ukrainian IT companies. Based on this research, we can provide the following recommendations for innovation policy:

First and foremost, it is required to provide a favorable environment for business development, overcoming problems as follows:

- high levels of corruption, especially in governmental structures such as Bureau of

Technical Inventory, Tax Service, Customs Service, etc. ;

- imposition of superfluous services by the authorities and overpricing of administrative services;
- simplifying procedures such as registration and liquidation of businesses, VAT refunds, patenting and licensing.

As innovative development is inextricably linked to education and science, Ukraine needs to address a number of problems in this area:

- to give autonomy to universities so that they can, in particular, introduce their own admission rules;
- to create a system for tracking plagiarism and to extend this system to all Ukrainian educational institutions;
- change some of the criteria for evaluating the quality of work of teachers and scholars, including the criterion for the number of publications in scientific publications in order to evaluate quality instead of quantity;
- to promote the profession of a lecturer and teacher, in particular in the field of information technology, as for the time being mostly elderly people teach in this field who do not possess the latest information and cutting-edge technology;
- to foster business collaboration with universities and other research and development institutions.

A strategic sector for Ukraine's innovation is the information technology industry, so special attention should be paid to the development of IT entrepreneurship, which requires:

- a set of measures that allow to reach a new level of functioning of the industry (so far most companies are focused on working with foreign customers, and the domestic market remains in its infancy);
- purposeful protectionist policy of the state aimed at Ukrainian developers;
- rules that prioritize the supply of domestic product developed by Ukrainian companies in the public sector and local authorities;
- encouragement by the state of purchases of domestic product by private enterprises through partial subsidization or reduction of tax burden for their work with Ukrainian development companies;
- support for the start-up movement, which creates the foundation for new approaches and trends, allows to become the cradle of big business in the future;
- creating an environment for the physical comfort of the IT market players.

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EFFECTIVE COST MANAGEMENT - A PRIORITY CONDITION OF AGRICULTURAL ENTERPRISES DEVELOPMENT

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Annotation. *The article deals with the process of expenditure management. The main positive and negative features of agrarian enterprises expenditure management system are analyzed. It is found that making effective decisions regarding expenditure management is based on a specific understanding of expense formation and the impact of expenses on the competitive and financial condition of an agricultural enterprise. The basic concepts of creating an effective system of expenditure management in agricultural enterprises are investigated.*

Key words: *agricultural enterprises, management decisions, expenses, expenditure management, expenditure management processes, expenditure management system, basic concepts.*

Problem statement. At the present stage of economic development of the enterprise expenses are an important aspect of its economic stability, competitiveness and efficiency of production. Maintaining an optimal level of expenses is a basic condition for its survival and development. Expenditure management is the most important tool for an enterprise to achieve high economic results.

Prospects for agricultural enterprise development mostly depend on expense behavior and management. The ability to manage them systematically and rationally during times of deteriorating market conditions increases the chances of survival. Expenditure management is an important function of the economic mechanism of an agricultural enterprise, which is confirmed by a large number of scientifically substantiated conceptual designs, methods and models of the management system.

Expenditure management, conversely, should be seen as a set of well-defined processes characterized by relationships and continuity. However, the main problem is that these expenses are unjustifiably ignored in practice. As a result, there are frequent cases of loss level and, in some cases, bankruptcy of enterprises.

Research objective. Research and substantiation of theoretical and practical principles of expenditure management in agricultural enterprises.

Literature review. In practice, there is a growing link between the expenditure management system and the performance of the agricultural enterprise as a whole. This aspect is not neglected by well-known scientists, both in the field of management and accounting context, in particular, the significant contribution to the study of the impact

of expenditure management on the development of agricultural enterprises made by such scientists: M.G. Greshchak, A.P. Gradov, I.E. Davidovich, L.V. Dikan, L.E. Dovgan, V.D. Nemtsov, G.M. Pasemko, O.D. Radchenko, L.D. Tulush etc. They believe that the real direction for the successful development of agricultural enterprises is to optimize expenses by developing an effective system for managing them.

Main results of the study. In the current market conditions for the development of agrarian production, a significant element of the production activity of all economic entities is the expenses that characterize the economic stability, competitiveness and efficiency of production. The process of promotion of products from the producer to the consumer is carried out with the expenses incurred, which occur at all stages of production and economic activity and thus ensure a comprehensive implementation of the task.

Expenses are a necessary condition for the operation of the enterprise. The amount of expenses significantly influences the formation of financial results, and is the basis for assessing the effectiveness of the enterprise. Achieving any goal, providing the end result requires expense. Both the objectivity of social development, the facts of practical activity, the laws of modern reality, and the logic of cognition show that first there are expenses, and then the results associated with these expenses. This is the very peculiar place of expenses in the life of all business entities [10].

Effective expenditure management is one of the priority conditions for the functioning of agricultural enterprises in the current environment. The constant changes that dictate the competitive environment encourage the heads of agricultural enterprises to react quickly to them and constantly make changes in the enterprise management system.

Constant changes occur in the conditions of formation of market relations, they are caused by the internal peculiarities of transformation processes. However, due to the effect of various factors (inflation, institutional uncertainty, insufficiency and asymmetry of information), the external environment of business entities changes faster than changes in its internal environment. This situation causes inconsistencies in the interaction of the enterprise with the external environment.

The inconsistency of changes in the internal environment of an entity does not allow management decisions to be made that are appropriate to the state of effective response to environmental challenges, since there is a delay in adapting to rapid changes occurring from the outside. The consequence of such a state of management of an entity's activity is a loss of potential that would ensure its preservation and further development, which leads to the further decision to restructure or discontinue operations through bankruptcy proceedings [3].

Successful management of an agricultural enterprise can only occur if it receives the information it needs to analyze the situation, make decisions and monitor its implementation. Lack of information compels the heads of agricultural enterprises to rely on intuition, increasing the risk of making the wrong decision.

The consistency and quality of management decision-making information will

depend primarily on the expense accounting system. However, modern accounting and control systems are aimed primarily at external users of information, and do not contain a management system that would take into account the needs of all entities [11].

Expense reduction is an important task, but not the primary goal of managing enterprise expenses. The process of reducing expenses alone can be accompanied by a decrease in the quality of manufactured products and customer service, the refusal to produce and sell the types of products that are in demand, but do not require significant expenses. The main purpose of managing the expenses of agricultural enterprises is to increase the competitiveness and efficiency of its activities [10].

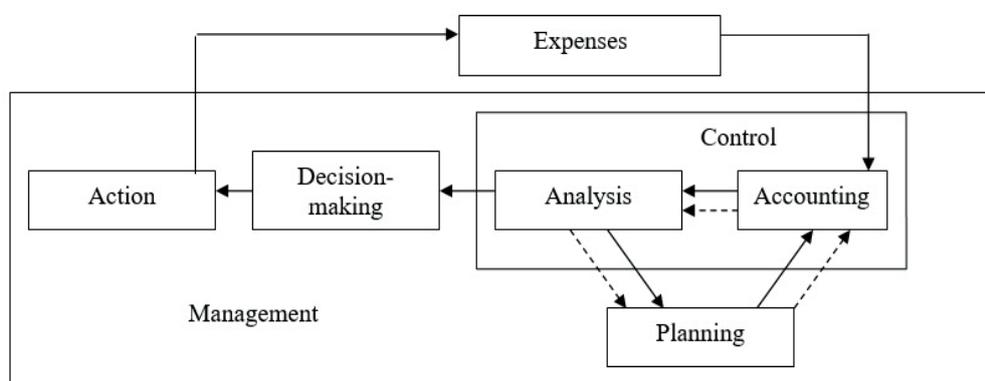


Fig. 1. Expenditure management process

Expenditure management mechanisms involve the use of specific methods and tools by which they study expenses, examine their behavior to manage them. The choice of methods is to apply a variety of methods and techniques that can be used to study and obtain accurate expense information and to make the right management decisions.

Management decision making affects the size of the financial result of the enterprise, and therefore the final stage is the assessment of the decision on compliance with the task. If the result of the evaluation indicates that the implementation of certain decisions and measures is inappropriate and disadvantageous, then there is a need to choose another method of analysis that will ensure the profit and return on expenses of the enterprise [11].

According to G.A. Patrino, the efficiency of expenditure management is achieved by:

- production of competitive products due to lower expenses and, accordingly, prices;
- availability of qualitative and real information on the cost of individual species products and their position in the market, in comparison with products of other manufacturers;
- the possibility of applying flexible pricing;
- provision of objective data for budgeting of the enterprise;
- the ability to evaluate the activity of each unit of the company from a financial point of view [9].

Making effective expenditure management decisions is based on a specific

understanding of forming expenses and exploring the impact of expenses on the competitive and financial position of an agricultural enterprise. Purposeful, rational expenditure management reflects the level of functioning of the expenditure management system of agrarian enterprise.

The main positive features of the expenditure management system of agricultural enterprises include:

- identifying opportunities for reducing production expenses and creating favorable organizational and economic conditions for saving all types of resources;
- formation of sustainable competitive advantages of price origin;
- improving the efficiency and adequacy of management data on the use of enterprise resources [1; 5; 7].

However, the existing expenditure management systems of agricultural enterprises have disadvantages:

- management is implemented through a plan that is formed at basic expenses, according to the criteria for evaluating the activity of a particular business unit;
- there is no procedure for regulation and accounting of the total expenses and their structure at the stages of the product life cycle;
- the subsequent stages (stages) do not take into account the economic expense calculations made in the previous stages;
- there is also an autonomous management of integrated work for economic units (units), but not for production;
- when attesting to the economic level and to a person who almost does not take into account economic parameters;
- does not correspond to the structure of management of the spent forces;
- the current quality management system is not full of economic content;
- there is no complete stage-by-stage design system (forecast results are optional for subsequent stages);
- there is no expense reduction strategy for the participants in the development process (no checkpoints have been established to assess the feasibility of further implementation of expenses) [1; 2; 4].

In case of late elimination of the shortcomings of the existing expenditure management systems, the following consequences are possible:

- reducing the expense of one of the links can lead to an increase in total expenses (reducing the possibility of cost planning);
- reducing the efficiency and objectivity of evaluation in the certification of agricultural products;
- reduction of production expenditure management efficiency;
- impossibility of purposeful influence on optimization and reduction of total expenses;
- performance loss occurs as life cycle stages change;
- there is a rise in expense of the full life cycle;
- there are inaccuracies in determining expense reduction targets;

- projects are not developed with maximum efficiency;
- the contribution of participants to innovations in the overall results is inaccurately calculated and estimated;
- the period of development of economic parameters of the product is shifted due to the lack of consistency of economic indicators of the project by stages of the product life cycle;
- there is an orientation to the implementation of the plan, not taking into account the real possibilities of reducing the expense of products and achieving scientific and technological progress.

Therefore, the efficiency of the agricultural enterprise is inextricably linked to the emergence of expenses, which necessitates the need for organic, clear integration of expenditure management with other functional management systems and the overall enterprise management system.

In our view, the expenditure management system is a set of interrelated controls that, under the influence of economic laws, carry out the formation and regulation of expenses, in accordance with the strategic goals of the enterprise (Fig. 2).



Fig. 2. Expenditure management system

In today's market conditions, the expenditure management system is also the main information foundation for managing the agricultural activity of an agricultural enterprise, its strategy and tactics. The main task of such a expenditure management system is to gather and prepare information for making effective operational and predictive management decisions.

Because, all management decisions in the field of resource efficiency and

organization of their turnover are closely interrelated and directly or indirectly affect the financial results of the enterprise. Therefore, expenditure that ensures the development of interdependent management decisions, each of which contributes to the overall performance of the agricultural enterprise [2].

The expenditure management system, through its functions, is the main information foundation for managing internal activities, its strategy and tactics. The main purpose of such a system is to prepare information for making prompt and predictive management decisions.

Therefore, one of the important elements of a production expenditure management system is the implementation of a system of ongoing cost control, namely the creation of centers of responsibility, which serve as an information base for the ongoing control of the final results of production.

In order to use resources efficiently, the expenditure management process must be interconnected not only with specific data, but also with specific performers through a well-established information system. That is, the expenditure management system should be provided with an information base, and only in combination with this provision can its effective functioning be possible.

The creation of centers of responsibility, their motivation and incentives to achieve the set goals, namely, reducing the level of production expenses, will contribute to solving these problems.

The assessment of the responsibility centers' activities should be based on:

- 1) analysis of variations in budget and actual cost indicators and financial performance;
- 2) analysis of non-financial indicators of the center activity, in particular, such as, percentage of rejected goods, use of working time, number of customer complaints, percentage of repeat orders, etc.

It is advisable to evaluate the expense center's activities on the basis of compliance with the expense budget, provided that the planned production program is fulfilled, that is, ensuring the feasibility and expense effectiveness. The performance of controlled and uncontrolled expenses needs to be analyzed separately. The performance of the profit center should be measured when the budget profit margin is reached. In doing so, it is necessary to analyze the monitored financial result, that is, it depends on the effectiveness of the management of controlled income and controlled expenses, as well as the financial result without taking into account the total operating expenses and the amount of net profit of the responsibility center.

In a decentralized production organization, different centers of responsibility often exchange goods and services with each other. Choosing the best approach to transfer pricing is important to stimulate expense savings by providing an objective assessment of the responsibility centers.

Establishing an effective system of expense center management and transfer pricing helps to improve control of the level of expenses of each center of responsibility, identify internal reserves for reducing expenses and improve the financial performance

of agricultural enterprises and its financial and economic sustainability in the market.

However, even the most effective management decisions in the area of expenditure management and rational use of resources, developed and used by agrarian enterprise in the previous period, are not always reused in subsequent stages of production activity. This is mainly due to the peculiarity of the expenses of both the economic category and changes in the internal conditions of operation of the agricultural enterprise and its external environment.

Therefore, the expenditure management system of an agricultural enterprise must be highly dynamic and take into account the change of all elements of the environment, the pace of economic development, the ability to form their own financial resources, the organization of all processes in the production and financial activities and other parameters of the functioning of the agricultural enterprise.

In addition, the preparation of all management decisions in the field of expenditure management, the choice of ways and forms of regulation of their level should take into account all alternative options of action and provide variability of approaches to the development of individual management decisions. However, no matter how cost-effective projects are in the area of expenditure management, they should not contradict the main goals of the agricultural enterprise, as well as the strategic directions of its further development, as this will shift the economic base of efficient and rational use of resources in the future.

The main concepts of creating an effective expenditure management system in an agricultural enterprise are given in Table 1.

An effective system for managing the expenses of an agricultural enterprise, organized in the light of the aforementioned requirements, is the basis for the high rates of development of an agricultural enterprise, the achievement of the required final results of its production activity and the constant increase in the market value of agricultural products.

It should be noted that, thanks to the concepts, the competition of agricultural enterprises as a process in time is gaining significant acceleration, but it can change the pace depending on a wide variety of factors, which are accordingly reflected in changes in the enterprise management system and expenses.

However, it is important to note that in modern approaches to building an efficient system of management of expenses of agricultural enterprises are still not fully resolved important management problems, mainly related to the expansion of the scale of expense planning, justification of management decisions in the field of resource and technological innovations, etc. The need to address these issues is linked to the need to use a set of principles, which is a meaningful and important basis for the formation and functioning of an effective system for managing the expenses of agricultural enterprises.

An important role in the expenditure management is played by the management strategy, which must be taken into account, because it shows at what stage of production is the product that makes the farm. When choosing the right strategy, expenses tend to be gradually declining, revenue exceeds expenses, but there is still a problem of efficient

expense allocation [8].

Table 1

Basic concepts of creating an effective expenditure management system in agricultural enterprises

Concept	Characteristic
Expense-forming factors	the very first concept, the essence of which was to find structural and functional factors influencing expenses, their elimination or development
Alternative expenses	the financial decision is made by comparing alternative expenses (opportunities lost); expenditure management should be based on minimizing the amount of real enterprise expenses and lost profits
Value Added	the modern traditional expenditure management paradigm, in which expenses components are considered at all stages of value addition and the main goal is to maximize the difference (value added) between procurement and the implementation of a service or product
Value chain	designed for strategic analysis of enterprise expenses compared to competitors and their reduction
Transaction expenses	interpreting costs as costs of adapting an enterprise to changing market conditions
AB-costing (ABC)	it is based on the economic calculation of the real cost of goods, works, services, which does not require monthly monitoring, does not depend on accounting calculations and has a long-term nature
Performance Management	determines the management of production factors in different interpretations that shape production losses; in most cases, modern businesses are beginning to struggle to reduce expenses in order to increase efficiency when a product is designed and already put into production
Strategic positioning	analyzes the strengths and weaknesses of the company in comparison with competitors, the advantages and threats of the enterprise in the market

First of all, the importance of expenditure management in current economic environment is determined by the place of production expenses. Thus, over time, manufacturing expenses have been and are the focus of every business entity engaged in manufacturing activities. This is due to many reasons, among which are:

- the need for rational use of scarce resources;
- ensuring revenue growth through expense savings;
- obtaining a synthetic indicator that characterizes the efficiency of use of all types of resources (cost of production);
- resource planning per unit of production and actual cost analysis to identify deviations and their causes;

- comparison of costs and revenues to determine the margin income;
- solving issues of expanding the range of products, utilizing the capacity of the enterprise, development of new types of products [6].

Providing an optimal level of expenses is an impetus for increasing product competitiveness, however, currently, there is not a single expenditure management process in Ukraine. Expenditure management today has a broad scope of activities and because it is part of the overall management strategy of any enterprise, any innovation in this area directly affect management, including expenses.

One of the ways to ensure the efficient operation of farms is to find tools and methods for managing expenses that meet current market requirements. Absolutely all farms are mainly interested in reducing expenses. Meanwhile, it should be understood that improving the tools and methods of reducing expenses is not identical to improving the efficiency of the economy.

In the current period, expense reductions may lead to a loss of competitive advantage over the long term. In present environment, it is practically impossible to achieve a production volume that would allow to determine the existing level of expenses as acceptable, so expenditure management concepts, that would outweigh the interests of the producer in the long run, are appearing.

Conclusions and recommendations. Therefore, one of the important elements of a expenditure management system is the implementation of a system of ongoing expense control, namely the creation of centers of responsibility, which serve as an information base for the ongoing control of the final production results. In order to use resources efficiently, the expenditure management process must be interconnected not only with specific data, but also with specific performers through a well-established information system. That is, the expenditure management system should be provided with an information base, and only in combination with this provision can its effective functioning be possible. The creation of centers of responsibility, their motivation and incentives to achieve the set goals, in particular, reducing the level of production expenses, will contribute to solving these problems.

The expenditure management system of an agrarian enterprise should also be focused on the constant search and identification of reserves of saving of resources, normalization of their expenses, planning, accounting and analysis of expenses by their types, stimulation of resource saving and reduction of expenses in order to increase the efficiency of financial and economic activity. While studying the process of formation of production expenses it is necessary to consider that their volumes are influenced by the internal, but also the external environment of the production process, as well as by factors from other spheres of activity.

And in the production process, it is possible to increase expenses before large-scale production and after the release of significant funds. With the regular use of funds by quarter, the pattern of seasonality is not always observed, and depends not only on the natural and climatic features of a particular agricultural enterprise, but also the level of production and specialization intensity.

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IMPLEMENTATION OF THE HACCP SYSTEM FOR THE DAIRY INDUSTRY

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Annotation. *Now a global problem affecting not only the health of the population and the standard of living, but also its activity, demographic aspects, morbidity and, further, the economy of Ukraine, is the quality and safety of food. It is the implementation of the HACCP system that addresses this pressing issue. This system is a precautionary system for assessing the control of hazardous factors in food raw materials, finished products and technological processes, which significantly reduces the risk levels of hazards to human life and health. In this article the implementation of this system at dairy processing enterprises located in Poltava region was analyzed.*

Key words: *Hazard Analysis and Critical Control Point system (HACCP), milk, dairy industry, quality, safety.*

The European integration trend of the restructuring of the Ukrainian economy implies a fundamental change in the legislative prerequisites not only of the commercial and economic sector, but also of establishment of food production management systems that will guarantee food safety. The consumer purchasing the food should be informed of the whole food chain "from field to fork" and be assured that there is no adverse effect on health from its consumption. This principle provides control at all stages of production, each of which must be documented: how the land on which the animals were bred or plants were raised was cultivated, the conditions in which they kept these animals, their diet, method of slaughter, production technology, its packaging. In addition, it should include the parameters under which the products are transported and stored in a commercial network. [1].

The HACCP system has been introduced around the world for several decades to identify, evaluate and control the hazardous factors that are paramount to food safety. It is a logical, simple, effective food safety control system with a complex structure designed to identify risks and / or critical situations and create a plan to control such situations.

On the one hand, this system guarantees the safety of products on the path of the food chain from producer to consumer, enables to identify all the critical points that can affect the safety of the final product, eliminate harmful factors and control the complete

production process, and on the other it is a reliable way of protection for food products consumers [2].

Therefore, the HACCP system can be called a kind of tool to protect the reputation of the manufacturer. The implementation of this system requires some material costs for the operators of the food market. But in the long run, all players in the food chain - from producers to consumers - get significant benefits. Because the former become more competitive, producing better quality products, working to earn the trust of consumers and successfully compete for their demand in both domestic and foreign markets. And consumers, in their turn, gain confidence in the quality and safety of Ukrainian food products they buy at Ukrainian supermarkets or markets. [3].

Milk and dairy products are an integral part of the diet of the Ukrainian population. In 2016, the average Ukrainian consumed more than 209 kg of milk and dairy products, which is only 55% of the rational norm, which equals 380 kg per person per year [4].

The dairy industry in Ukraine accounts for about 11% of the total sales of food products. The total volume of milk production in Ukraine amounted to 10,38 million tonnes in 2016, which is 42,4% of the 1990 level. [5].

Particularly urgent are the problems of quality control in the dairy industry after Ukraine's accession to the WTO, which has led to stricter requirements for products produced by these companies. Traditionally, dairy businesses are considered an important sector of the food industry because it provides the population with such vital products as milk, dairy products. Food industry needs special attention in quality management due to the food production, so food businesses depend not only on the competitive position in the market, its image and profit, but also the health of the population [6]

The structure of milk production is critical - only 26% is produced in agricultural enterprises [5]. And this has a significant impact on quality: in 2016, only 14,6% of extra quality milk, 36.7% of higher quality, the rest of first quality, second quality and non-varietal quality. In such circumstances, products made from such raw materials are uncompetitive on the world market. Although recently there has been an annual increase in extra and higher quality milk. For the first time in 2016, their share is more than half - 51.3% [7-8].

However, if we analyze the quality of products produced by domestic dairy producers, they do not reach a level that satisfies the international market. First, it is due to the low quality of raw materials that are usually supplied to dairy farms of households using manual labor.

Another important reason for low-quality dairy businesses is their lack of an effective quality management system and product safety for businesses. The quality of the management system, which is formed on the basis of the HACCP principles, will minimize the risks associated with the quality and safety of products, enter the international markets and increase sales.

HACCP implementation problems have been actively researched by both foreign and Ukrainian scientists. Among foreign scientists, the problems of implementing the HACCP system at milk processing enterprises were addressed by Tabeen Jan, Kailash

Chandra Yadav [9], Peristeropoulou M, Fragkaki AG, Printzos N, Laina I [10]. Among Ukrainian researchers are works of Mykyichuk M.M., Ostapiyuk S.D. [11], Bogatko N.M., Vlasenko V.V., Bogatko L.M., Salata V.Z., Semaniyuk V.I. and others [12-14].

However, the implementation of the food safety management system in the domestic food industry is going slow. This leads to the need for further study of the system, which reveals the expenses and benefits of its implementation, affects the quality of products and companies [15].

Now food producers in order to expand the market for their products consider it expedient to have a certificate which, after passing the audit (inspection of the enterprise by an experienced auditor), confirms the effectiveness of the HACCP food management system and recognizes the enterprise as capable of producing safe food. The certification procedure results in the issuance of a certificate. Businesses need to be careful about the choice of certification bodies, as the international certification body has the highest level of credibility not only in the Ukrainian market and at the CIS level, but also in the European and world ones (Bureaveritas, SGS).

Today, Ukraine has become a strong agricultural player at the world market. We supply our agricultural and food products to markets of almost 190 countries. Ukrainian goods are in demand among consumers in Asia, the EU and Africa. Strengthening global positions and multiplying excellent results are a major challenges for manufacturers today. Ukrainian producers are interested in the fact that domestic and foreign consumers have the opportunity to buy really high quality food products and are confident in their safety for their health and health of their children.

International Food Safety Certificates ISO 22000, FSSC 22000, IFS, BRC, based on HACCP principles. Therefore, if one of these systems operates on the enterprise, then the HACCP is fully operational.

The most common and understandable for all players in the global food and raw materials market are the following standards:

- ISO 22000:2005 Food safety management systems. Requirements for all food chain organizations. The standard was developed by an international standardization organization (ISO). In Ukraine it is adapted and valid as DSTU ISO 22000: 2007;
- BRC (British Retail Consortium Global Standard) – British Retailers Association Standard;
- IFS Food (International Featured Standard Food) – an international standard for retailers;
- Dutch HACCP – standard for the HACCP system in the Netherlands;
- FSSC 22000:2010 – standard for manufacturers of particular categories of food products, integrating the requirements of ISO 22000:2005 and PAS 220:2008, adopted by the association of food safety experts Global Food Safety Initiative (GSFI).

In developing a food management system, the following regulatory documents are additionally used:

- ДСТУ-Н ISO/TS 22004:2009 (ISO/TS 22004:2005) Food safety management systems - Recommendations for use ISO 22000:2005;

- ДСТУ ISO 22005:2009 (ISO 22005:2007) Traceability in feed and food chains - General principles and basic requirements for system design and implementation.
- PAS 220:2008 – Food security prerequisites for food businesses - a standard developed by the British Standards Institute;
- ISO/TS 22002-1:2009 Programs-prerequisites for Food Safety. Part 1. Food industry [16]

For food producers, the HACCP system does not contain radically new rules. HACCP first of all organizes a bunch of sanitary and technological norms and parameters, as well as rules of production. Control rules must be understood by all capacity personnel, from management to the employee. The astonishment and bewilderment of manufacturers at the initial stage of the development of the HACCP system may be due to the fact that manufacturers are accustomed to work according to specific requirements (height of walls 2.70, lined with glossy tile). According to the HACCP system, the height of the walls should be sufficient for the implementation of technological parameters, and the surface of impermeable materials, easy to wash and disinfect. These differences require manufacturers to take a completely different approach to the development of their own individual parameters, because of which, the HACCP management systems are not able to be universal even for the same type of enterprises and must be developed for a specific production with complete equipment and features of the range.

According to Ukrainian legislation, since September 20, 2019, all food chain businesses (partly except for primary production) need to implement a HACCP food safety management system. Order of the Ministry of Agrarian Policy and Food as of 01.12.2012 No. 590 On approval of the Requirements for the development, implementation and application of permanent procedures based on the principles of the Food Safety Management System (HACCP) regulates the procedure for the development and implementation of the System.

HACCP implementation is required for:

- producers of food, alcohol and packaging materials for these products;
- enterprises involved in the storage, prepacking and packaging of finished food;
- manufacturers of detergents and disinfectants and equipment for food industry enterprises;
- producers of feed, fertilizers, pest and weed control agents (pesticides);
- producers of raw materials: from farms to agroholdings (in the presence of processes that change the state of production: cooling, storage, drying, separation, etc.);
- catering establishments and food trading establishments. These include cafes, restaurants, cafeterias (companies, educational and medical institutions);
- transport organizations involved in the transportation of food products;
- small enterprises, which include: enterprises engaged in the delivery of food products to the final consumer, have no more than 10 employees and are located in an area not exceeding 400 m². As well as those who do not supply food to the final consumer and have no more than 5 working staff.

Sencha, LLC which is located at Sencha village, Lokhvytsia district, Poltava region,

has developed, implemented and effectively operating HACCP system in accordance with the international standard ISO 22000:2005, which is a system of management of quality and safety of raw materials, consumables and auxiliary materials, as well as final products. ISO 22000:2005 complies with the national standard DSTU ISO 22000:2007. ISO stands for International Organization for Standardization.

At the initial stage of implementation of the food management system, a HACCP group was formed from the representatives of each stage of production, some underwent special external training. The HACCP group of Sencha, LLC conducted the so-called diagnostics of the enterprise. The stages of production and processes that can directly or indirectly threaten the safety of raw materials, auxiliary materials, or ultimately finished products have been identified.

According to Order No. 590 of the Ministry of Agrarian Policy and Food, for the maintenance of hygiene throughout the food chain, in order to produce safe end products, as well as to determine the rules of food handling, the HACCP group of Sencha, LLC has developed programs-prerequisites for the HACCP system.

They are mandatory and are intended for the effective functioning of the food safety system and the control of hazardous factors. They are designed, documented and fully implemented at the capacity of Sencha, LLC before the application of the HACCP system. The scope of the programs-prerequisites covered all potential safety threats.

The HACCP team developed and implemented programs-prerequisites, taking into account the characteristics of the range of final foods (milk pasteurized 2,5% fat, kefir 0% fat, yoghurt 2,5% fat and curds 0% fat), as well as technological processes and capacity specifics.

The HACCP system programs-prerequisites have covered the following processes:

- Proper planning of industrial, auxiliary and domestic premises to avoid cross-contamination;
- Requirements for the condition of premises, equipment, repair works, equipment maintenance, calibration, etc., as well as measures for the protection of food products from contamination and external impurities;
- Requirements for planning and state of communications - ventilation, water supply, electricity and gas supply, lighting, etc. ;
- Safety of water, ice, steam, auxiliary materials for processing of food products, objects and materials in contact with food products;
- Cleanliness of surfaces (procedures for cleaning, washing and disinfection of industrial, auxiliary and household premises and other surfaces);
- Health and hygiene of the staff;
- Protection of products from impurities; management of production waste and garbage, their collection and removal from capacity;
- Pest control, definition of species, prevention of their occurrence, means of prevention and control;
- Storage and use of toxic compounds and substances;
- Specifications (requirements) for raw materials and supplier control;

- Storage and transportation;
- Control over technological processes;
- Food labeling and consumer awareness [17].

The HACCP systems at the dairy processing plant Sencha, LLC are based on 7 principles, which are widely recognized and generally accepted in European and Ukrainian practice.

1. Analysis and identification of hazardous factors. At this stage, the entire technological process was analyzed, from the selection of suppliers of raw materials and auxiliary materials, to the shipment of finished products to the consumer.

Validation (checking) of the quality of outsourcing services (deratization, transport logistics, etc.) was also carried out. The list of equipment and capacities in contact with products was compiled (Ф-БІП-7.7-7-2).

To determine the significance of the hazardous factors, the HACCP Sencha, LLC group evaluated each potentially hazardous factor and determined the degree of risk taking into account the probability of its occurrence and the severity of the consequences for human health in the event of improper control of the technological stages, creating its own method of hazard assessment, considering the specificity of the end product. The methodology for hazard assessment is presented in Tables 1 and 2.

Table 1

The estimation scale of probability of influence occurrence, score

The probability of influence occurrence	Probability	Estimation scale
From once a month and more often	High	4
From several times a quarter to once a month	Average	3
From several times a year to once a quarter	Low	2
From once a year and more often	Almost equal to 0	1

Table 2

Scale for assessing the severity of consequences for human health, score

The severity of the consequences for human health	Severity	Estimation scale, score
Leads to death or group 1 disability	Critical	4
Causes serious health damage. Long-term disability	Difficult	3
A disease that may require medical intervention	Moderate	2
Has almost no consequences. Slight malaise	Easy	1

Each technological process identifies potential factors (biological, physical or chemical) that may pose a threat to food safety. Identification analysis and analysis of hazardous factors are partially presented in table 3.

Table 3

Identification analysis and hazard analysis

	Process	Type	Hazard	Hazard assessment			Management
				Severity	Probability	Significance	
1.1	Input control (raw milk intake)	Б	Microbiological contamination: coliform bacteria; pathogenic microorganisms	3	2	6	- Document certifying the epizootic well-being of animals; - Passports for cows with fixation of checks and vaccinations; - Implementation of input quality control of each batch of milk.
		X	Toxins, mycotoxins, antibiotics, pesticides, nitrates, hormonal drugs	3	2	6	
		Φ	Absent	-	-	-	
1.4	Pasteurization and heating of milk up to 85-900 C	Б	- pathogenic microorganisms. Insufficient pasteurization of milk (equipment breakdown); -microbiological contamination	3	2	6	- Pasteurization parameter control log; - Thermograms; - Pasteurization efficiency test (enzyme tests); - Schedule of calibration of metrological equipment.
		X	Elements of detergents (poor quality of equipment flushing)	2	2	4	
		Φ	Absent	-	-	-	

2. Identification of critical control points. As a result of the analysis of hazardous factors of technological processes, critical control points have been identified, their parameters which need to be periodically or constantly monitored for the safety of the final product

1) input control (intake of raw milk), chemical factor - toxins, mycotoxins, antibiotics, pesticides, nitrates, hormonal drugs;

2) storage of packaging, containers, labels, biohazard factor - temperature mismatch, development of coliform bacteria;

3) pasteurization, biologically hazardous factor - development of pathogenic microflora;

4) packing, marking, physical hazardous factor - external impurities (metal parts from equipment)

5) storage of finished products, biological hazardous factor - development of pathogenic microflora.

3. Setting critical limits. Each critical control point has its measurable limits (temperature, time) and they should not be exceeded.

4. Establishment of monitoring procedure.

The proper performance of the monitoring activity at Sencha, LLC is governed by the Procedure of PR-8.3 "Metrological Support". According to the provisions of which, the selection of control, measuring and testing equipment is carried out by heads of departments in accordance with the type of measurements, accuracy and requirements that are set in the normative documents before carrying out this measurement. Control and indicator measuring devices, which are used for measurement and are subject to state metrological control and supervision, are entered by the head of the unit in the "Schedule of calibration (measurement) of measuring equipment" (F-PR-8.3-0). Mandatory calibration and / or verification is required before commissioning new or refurbished equipment.

Example: necessary technological equipment (additional hygrometers in the finished product composition) is installed to ensure the monitoring process, and the required monitoring period is determined. For the purpose of documentary verification and further analysis, control protocols have been introduced - Control Log of Microclimatic Parameters in finished product composition.

5. Development of corrective actions. When fixing the exceeding critical limits of the parameters of the critical control points, it is necessary to envisage actions that will restore the proper technological parameter and minimize the negative impact at the critical control point, which may cause a threat to food safety. In this case, inappropriate products must be distinguished. (In case of an emergency power outage, which can provoke shutdown of the refrigeration equipment and at night, for a total of about 7 hours, the products can be stored at an inappropriate temperature and deteriorate - this is a biological danger in the form of pathogenic microflora. The corrective action in this case is to restore the refrigeration equipment to function properly, and products are separated to find out their actual condition). At Sencha, LLC corrective actions, if necessary, are carried out according to Procedure PR-7.10-1 / 2 "Adjustments and corrective actions", according to which there are 4 stages:

1) establishing whether the product poses a safety risk based on expert judgment or the results of physico-chemical and microbiological tests;

2) if by the results of the first stage assessment there is no danger, then the product can be used as intended;

3) if a potential hazard exists (based on the results of the first stage assessment), it must be established whether the product can be recycled or sent for safe use;

4) if the operations with a potentially hazardous product foreseen in the third stage are impossible, then such product should be disposed of or destroyed.

When determining corrective actions, the responsible executor, who is appointed by the head of the HACCP group of "Sencha", LLC is indicated at each stage and terms of execution. All actions are recorded in the Log of inconsistencies and corrective actions (Ф-ІР-7.10-1/2-1).

6. Keeping and updating documentation. All documentation developed by the HACCP team is understandable and accessible to all employees of Sencha, LLC. The head of the group keeps all control copies, and the production units get certified copies. When there are some changes made to the documentation, production units are immediately provided with current copies.

7. Performance evaluation. Periodically, but at least once a year, the HACCP system is tested for its efficiency and validation. First of all, validation (verification) of all protocols (logs, schedules, flowcharts, etc.) is carried out at venues, and upon completion, the HACCP system is verified (validation and efficiency confirmation).

Thus far there is an effective and up-to-date HACCP food safety management system at Sencha, LLC, which is not limited to the development of documentation and the establishment of a basic order in production. It is important for the dairy company that this system really works and is effective and not only look good on paper. Thanks to the active and current system of HACCP at Sencha, LLC, fully implemented the Food Quality and Safety Policy, approved by senior management of the enterprise, which is a reliable confirmation that the manufacturer provides all the conditions that guarantee stable production of quality and safe products.

The introduced HACCP system at Sencha, LLC solves the following issues:

- optimization of production processes at all stages of the technological chain;
- preliminary detection of inconsistencies and the possibility of eliminating their manifestation in the future;
- rational use of material resources and expenses;
- compliance of the final product with all requirements of the client (consumer), including quality and safety indicators;
- fulfillment of the requirement of the Ukraine legislation that provides the introduction of the HACCP system at all enterprises of the food chain of the food industry;
- prospects of entering the European and world markets.

According to the Law of Ukraine On State Control of Compliance with Food, Feed, Animal By-Products, Animal Health and Welfare No. 2042 as of May 18, 2017, Food Businesses are subject to periodic audits (checking the availability and the effectiveness of the HACCP system) and inspection (control of the sanitary and hygienic state of the enterprise) with a certain individual periodicity for each enterprise, depending on the degree of food safety risk, as well as the results of previous inspections. Having a certificate issued by a certification body does not guarantee that the company will pass the inspection. During inspections, state inspectors of the State Consumer Services use unified Checklists.

The HACCP quality and safety management system, despite the standard by which it is developed, is an integral part of the success of Ukrainian producers in the domestic

and foreign markets. The specificity of the HACCP system is that it cannot be universal, due to the individual technological equipment of the enterprise, the presence of semi- or full automation the HACCP system is developed separately for each operator of the food market. Therefore, the study of this issue is extremely relevant for the further development of the food and raw materials industry.

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RISK ASSESSMENT AND PERSPECTIVES OF UKRAINE'S BANKING SECTOR FUNCTIONING

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Annotation. *The state and tendencies of banking sector of Ukrainian economy functioning have been analyzed, including changes in the number of banks, the number of employees, liabilities, assets, provided loans. Assessment of the main performance of Ukrainian banking system has been made. Approaches to identifying non-performing assets / loans and the impact of their change on banks' activities have been studied. The basic conditions for resumption of crediting and reforming of financial sector of Ukrainian economy have been considered.*

Key words: *banking sector, banking system, banking security, assets, loans.*

Relevance of research. Strengthening the national security of the country, its position in the international market, ensuring its independence and economic growth is not least dependent on the stability and security of banks. The task of banking system is to stabilize the monetary and credit system, to adjust the movement of financial resources at all levels, to ensure the convertibility of national currency, to finance the state, budget and enterprises, to support investment processes in the country, to provide crediting.

However, banks are constantly faced with all kinds of risks, so the issue of bank security does not lose its relevance. After all, banking and its system affects all aspects of society and has a direct or indirect relationship to all participants in market relations. First and foremost, the issue of banking security affects the interests of bank owners and shareholders, as well as customers and users of banking services. It is not least relevant to business partners and bank staff.

Analysis of previous researches and publications. Issues of banking security, in particular financial, were studied by L. Albanin, O. Baranovsky, S. Bezvukh, T. Bolhar, O. Bocharov, S. Bukin, S. Vasylychak, M. Vykliuk, I. Vorobiova, V. Hamza, L. Herasymenko, P. Herasymov, N. Herasymchuk, V. Hizhevsky, Y. Holoborodko, K. Horiacheva, N. Hrebenuk, V. Hrytsenko, S. Dmytrov, L. Dolia, N. Dudchenko, A. Yepifanov, I. Zhylykin, N. Zachosova, M. Zubok, M. Illiash, O. Kaliuk, O. Karpenko, T. Kelder, O. Kyrychenko, L. Kovryzhenko, O. Korystin, M. Korniyenko, A. Korchenko, V. Kralich, S. Ksiondz, N. Mahas, M. Marchukovska, N. Matveev, S. Melesyk, P. Miliayev, T. Mirzoeva, N. Natocheyeva, O. Plastun, S. Poberezhny, N. Prokopenko, N. Riznyk, V. Semenov, A. Serhunin, L. Skachek, O. Slipenchuk, Z. Sorokivska, L. Strelbytska, M. Strelbytsky, K. Tahirbekov, I. Tkachuk, O. Tomashevskaya, O. Khytrin, V. Khoroshko, L. Khudoley, B. Shpyliovyy, O. Shtayer, D. Shcherbatiykh and others.

However, there is no unanimity in defining key concepts and developing a methodology for assessing the level of bank financial security, value-oriented approach is not taken into account while the formation of system for ensuring the financial security

of commercial banks, which have served as an impetus for writing the work.

Goal of research. The state of the banking system, its detailed assessment contribute to the understanding of the deep processes taking place in banking sector of the country's economy and to the development of an effective system for assessing its security. Therefore, the purpose of this research was to analyze the functioning of banking system of Ukraine.

Results of research. Today the banking sector of Ukraine operates in difficult conditions and with high risks. The following factors have a negative impact on banking activities: low population income; unsatisfactory financial position of potential borrowers; low level of resource base; the advantage of short-term liabilities over long-term liabilities; distrust to the banking sector; depreciation of national currency etc. All this reduces the liquidity of banking institutions and increases credit, currency and market risks.

In 2014 there was the largest number of banking institutions – 147 institutions. However, since 2015, under the influence of financial crisis, the hryvnia devaluation and political instability, banking institutions have faced financial difficulties and the process of their liquidation has begun. As a result, as of January 1, 2018, the number of operating banks was only 82 institutions, which is 65 institutions less than in 2014 (Table 1).

Table 1

Dynamics of change in the number of banks during the period of 2014-2017*

Quantity of banks	2014	2015	2016	2017
Solvent	147	117	96	82
- variation	(-33)	(-30)	(-21)	(-6)
State	7	7	6	5
- variation	(0)	(0)	(-1)	(-1)
Foreign	25	25	25	23
- variation	(0)	(0)	(0)	(-2)
Private	115	85	65	54
- variation	(-33)	(-30)	(-20)	(-3)
Insolvent	16	3	4	2
- variation	(16)	(-13)	(1)	-2
At stage of liquidation	21	64	84	95
- variation	(19)	(43)	(20)	3

* Source: compiled according to the data [1; 2]

The main reason for banks liquidation is the poor quality of loan portfolio due to the decrease in borrowers solvency, the slow rate of production resumption and the deterioration of labor market. Clearing the banking system of troubled banks, on the one hand, is a necessary prerequisite for Ukraine's economic recovery. But, on the

other hand, clearing takes place in opaque conditions and leads to increase in losses of bankrupt banks clients (only part of individuals funds, which are reimbursed by the Deposit Guarantee Fund, are subject to repayment).

Considering the approved by NBU timetable for increasing the minimal amount of authorized capital of banks, further cases of commercial banks self-liquidation can be expected in Ukraine in future. We will remind that according to the Resolution of the NBU Board №242 from April 07, 2016 as of July 11, 2017 the minimal amount of bank authorized capital should be not less than 200 million UAH. By July 11, 2018, its volume should be increased to UAH 300 million. Increase in minimal amount of banking institutions authorized capital will last up to UAH 500 million annually as of July 11, 2024 [3].

At the end of 2017 the NBU eased its schedule of increasing the minimal size of banks' statutory and regulatory capital. The schedule of gradual adjustment of authorized capital in compliance with the requirements of legislation has been renewed to not less than the following sum:

- UAH 300 million by July 11, 2020;
- UAH 400 million by July 11, 2022;
- UAH 500 million by July 11, 2024 [4].

Table 2 presents the distribution of authorized capital according to the schedule.

Table 2

Amount of banks authorized capital according to the schedule before capitalization *

Size of authorized capital	2014	2015	2016	2017
number of banks which have bank license	163	120	100	84
among them:				
authorized capital less than UAH 120 million	30	28	1	1
authorized capital from 120 to UAH 200 million	46	30	42	2
authorized capital from 201 to UAH 300 million	25	18	16	39
authorized capital from 301 to UAH 500 million	21	13	11	12
authorized capital from UAH 501 million and more	41	31	30	30

* Source: compiled according to the data [5]

The number of banks, the authorized capital of which is more than UAH 501 million, as of January 01, 2018 is 30 institutions or 35.7% of the number of banks that have a banking license. This means that two-thirds of banking institutions may fail to comply with the charters for increasing the size of the authorized capital and in the future this will lead to the accelerated liquidation of small banking institutions or their reorganization.

Decrease in number of banking institutions has led to a significant reduction in number of branches (Figure 1). In the analyzed period, the number of structural units

of banking institutions decreased almost twice, from 19.3 thousand units in 2013 to 9.4 thousand units in 2017.

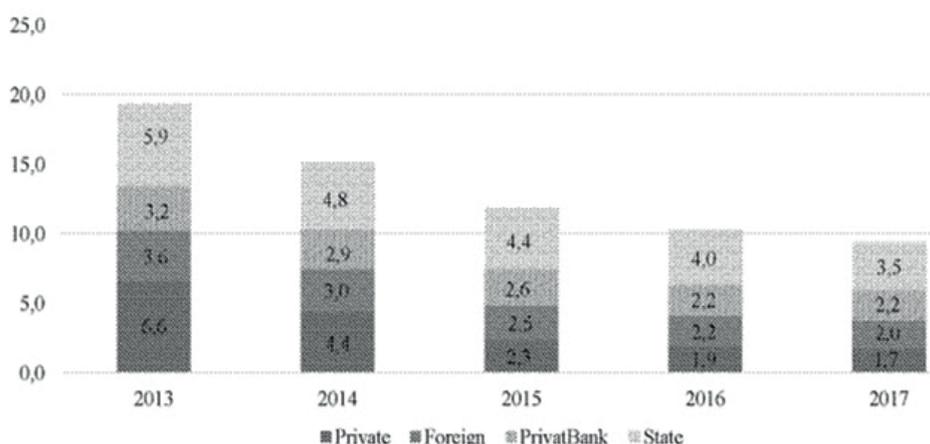


Fig. 1. Amount of structural units of banks during the period of 2013-2017, thousand units*

* Source: compiled according to the data [1; 2]

Accordingly, this situation led to reduction in number of employees (Figure 2). During 2013-2017, their number decreased by 111.3 thousand people and at the end of 2017 amounted to 135.3 thousand people.

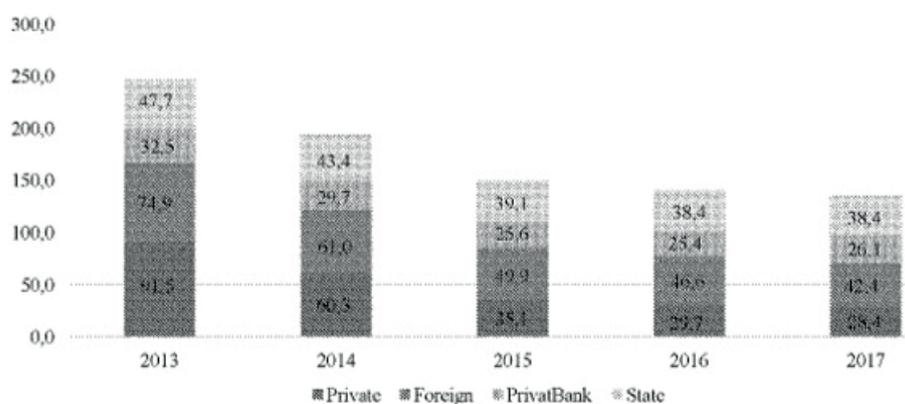


Fig. 2. Number of permanent staff of banks during the period of 2013-2017, thousand persons*

* Source: compiled according to the data [1; 2]

In 2013-2017 bank liabilities increased by UAH 87 billion and at the end of 2017 amounted to almost UAH 1 172 billion. The main factor of this growth is the increase in deposits and budgetary funds (Figure 3).

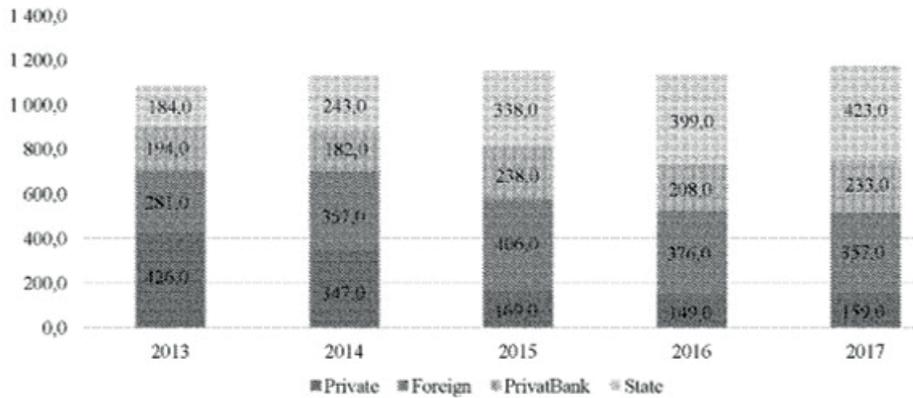


Fig. 3. Structure of bank liabilities during the period of 2013-2017, billion UAH*
 * Source: compiled according to the data [1; 2]

Corporate and customer accounts has the largest specific weight in liabilities structure, and they increased by 13.6% over the analyzed period and accounted for 77.2% of the total value of liabilities at the end of 2017 (Figure 4).

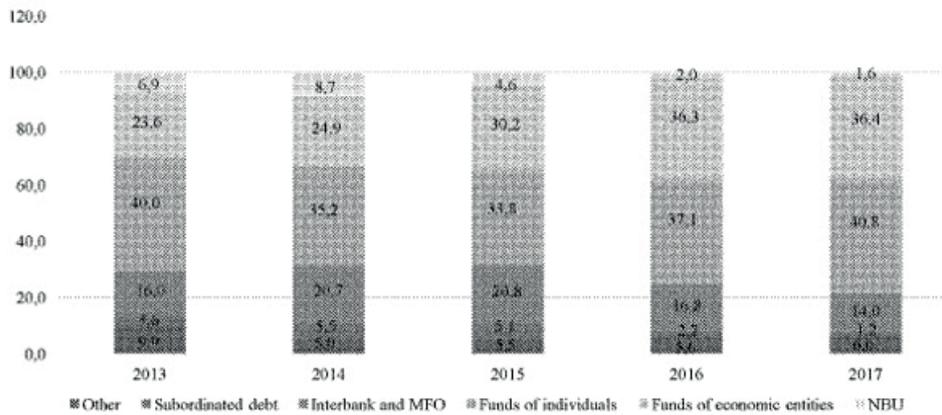


Fig. 4. Structure of bank liabilities in context of investments during the period of 2013-2017,%*
 * Source: compiled according to the data [1; 2]

Under the influence of economic and political processes Ukrainian banking institutions have slowed their operations. During 2013-2017 bank assets increased by UAH 58.26 billion or 4.55%; loans granted increased by 131.40 billion UAH or 14.42%. Despite the fact that during the analyzed period the number of banks decreased, in 2016-2017 there was an increase in banks' assets and loans. As of January 01, 2018 the share of the loan portfolio in bank assets is 78.03% against 71.31% as of January 01, 2014 (Figure 5).

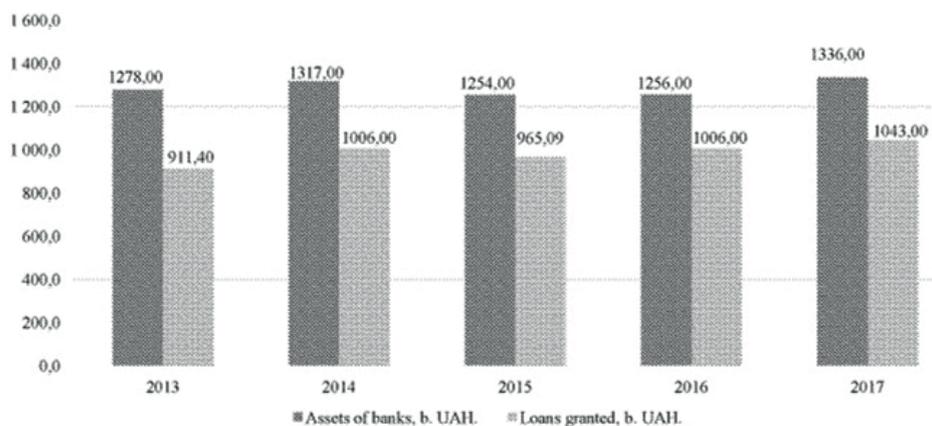


Fig. 5. Dynamics of Ukrainian banking system assets during the period of 2013-2017, billion UAH *

* Source: compiled according to the data [5]

An increase in the loan portfolio in 2013-2017 was due to an increase in the amount of loans granted to economic entities by 171.52 billion UAH (Table 3). In the structure of granted loans, the share of loans to economic entities is increasing (76.67% in 2013 and 83.46% in 2017), while the share of loans to individuals is decreasing (18.41% in 2013 and 16.39% in 2018). Such a decrease can be explained by the depreciation of the national currency, a decrease in the creditworthiness of the population and a decrease in attracted funds due to the mass early withdrawal of term deposits.

Table 3

Loans granted by banking institutions during the period of 2013-2017*

Indexes	Years					Deviation 2017/2013, %
	2013	2014	2015	2016	2017	
General amount of granted loans, billion UAH	911,4	1006,36	965,09	1005,92	1042,80	131,40
Including loans granted to economic entities, billion UAH	698,78	802,58	794,27	847,09	870,30	171,52
Share in general amount of granted loans to economic entities, %	76,67	79,75	82,30	84,21	83,46	6,79
Including loans granted to individuals, billion UAH	167,78	179,04	163,06	157,39	170,94	3,16
Share in general amount of granted loans to individuals, %	18,41	17,79	16,90	15,65	16,39	-2,02
including other loans, billion UAH	44,84	24,74	7,76	1,44	1,56	-43,28
Share in general amount of granted other loans, %	4,92	2,46	0,80	0,14	0,15	-4,77

* Source: calculated based on the data [5]

During the analyzed period, investments in securities refinanced by the NBU increased the most (24.2%) in the structure of net assets (Figure 6).

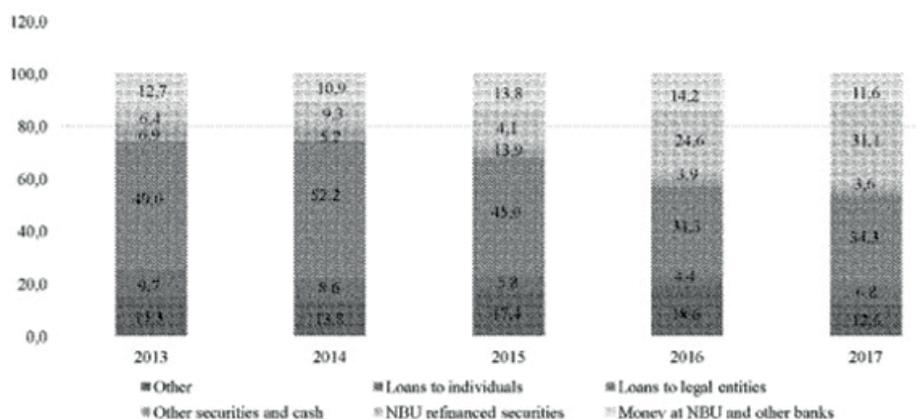


Fig. 6. Structure of banks net assets by elements during the period of 2013-2017,%*
* Source: compiled according to the data [1; 2]

During the analyzed period, the average interest rate on national currency loans tended to increase (from 17.20% in 2013 to 21.16% in 2017). The opposite is true for foreign currency loans. During 2013-2017, the average interest rate for these loans decreased slightly by 0.88% from 8.25% in 2013 to 7.32% in 2017 (Figure 7).

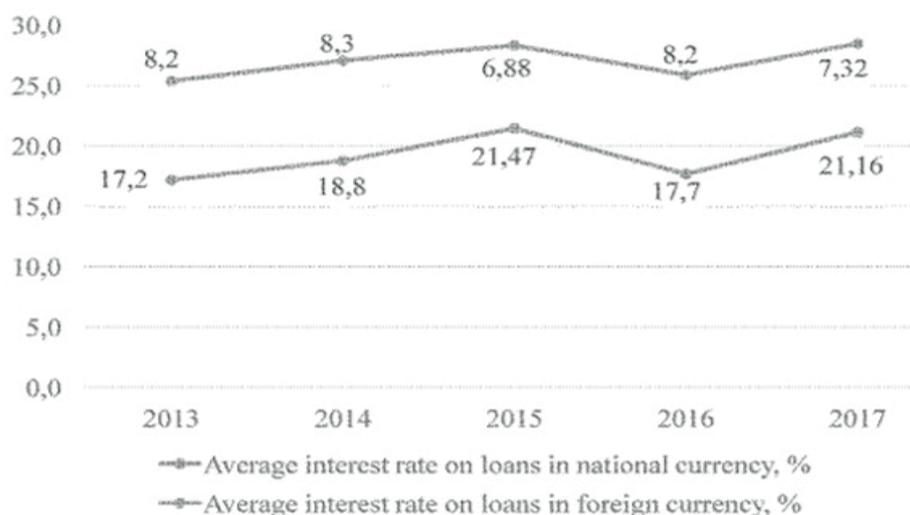


Fig. 7. Average interest rates for loans in national and international currencies during the period of 2013-2017, %*
* Source: compiled according to the data [3,4]

As the total amount of loans granted increased, the net operating income from operating activity increased by UAH 10 426 million (UAH 73 354 million in 2013 and UAH 83 780 million in 2018) (Figure 8). This is due to an increase in interest and commission income.

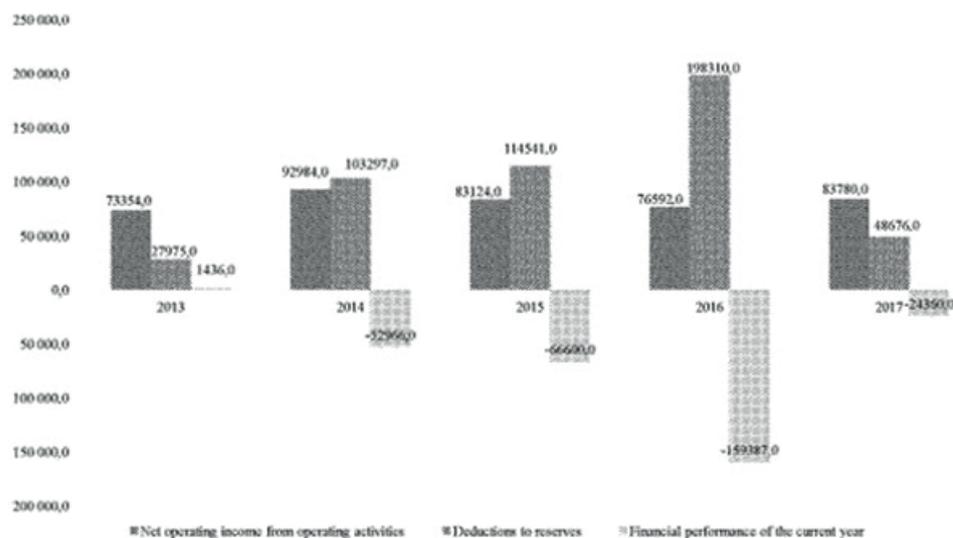


Fig. 8. Main indexes of Ukrainian banking system performance during the period of 2013-2017, million UAH *

* Source: compiled according to the data [3,4]

Deduction for reserves decreased by UAH 149 634 million. The high level of deduction to reserves as of January 01, 2017 was due to the creation of reserves of JSC CB "Privatbank" in connection with its nationalization.

Financial outcome of banking system in 2017 remained negative (-24 360 million UAH). But for four years of unprofitable activity this is the lowest figure. Unprofitable activity is caused by deductions into reserves of banking institutions.

The main indicators which characterize the profitability of banking institutions are Return on Assets (ROA) and Return on Equity (ROE). ROA describes the ability of a banking institution to effectively manage the assets of a bank, and the optimal value of the ratio should be more than 1%. Data of Figure 9 indicate a negative change in the financial position of bank assets, as the output of indicator since 2014 is negative. Exactly alike the ROE had a tendency to declining since 2014. The decrease in indicator affects the financial stability of banks. The highest negative ROE was in 2016: -116.74%. It was during this period that many banking institutions went bankrupt.

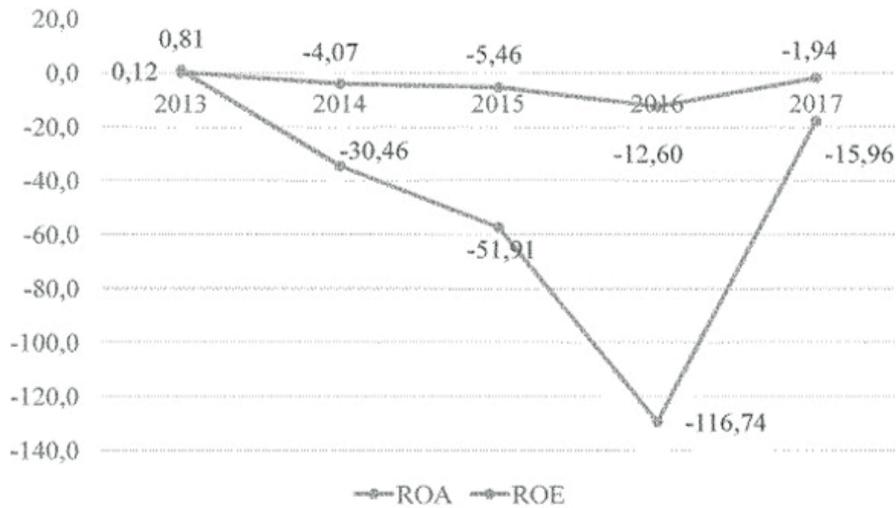


Fig. 9. Dynamics of main indicators, which characterize profitability of banking institutions during the period of 2013-2017, %*

* Source: compiled according to the data [4]

Decrease in profitability indicators leads to deterioration of banking system financial state, decrease in quality of the loan portfolio and increase in credit risks.

Due to complex economic and political instability, rising unemployment and inflation, lower income and creditworthiness of borrowers, a significant number of individuals and legal entities are unable to fulfill their obligations to the banks on time. This affected the growth of inoperative loans during 2013-2017 (Figure 10).

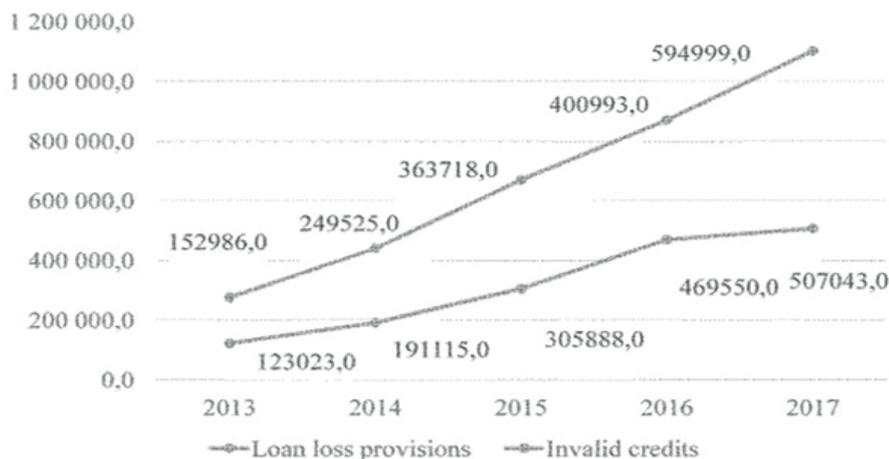


Fig. 10. Dynamics of reserves part for credit losses and part of inoperative loans in banks credit portfolio during 2013-2017, million UAH *

* Source: compiled according to the data [6]

In 2013-2017, the amount of inoperative loans increased by UAH 442 012,22 million or by 288.92% and at the end of 2017 amounted to UAH 594 998,62 million. Loan loss reserves are increasing along with the growth of inoperative loans. Their size for the analyzed period increased by 384 019,45 million or by 312.15%. The largest amount of reserves increased in 2016 due to the reserves created by JSC CB “Privatbank”. This factor had the greatest impact on reducing the quality of state's banking system credit portfolio.

On June 30, 2016, the Resolution of the NBU Board No. 351 approved the new Regulation on determining the size of credit risk by active transactions for banks of Ukraine. Major changes are the following:

1. The concept of "non-performing assets / loans" has been introduced, which is as close as possible to the generally accepted in world practice concept of "non-performing exposures / loans" (NPE / NPL).

2. Non-performing asset / credit is an asset for which the debt repayment delay period exceeds 90 days (30 days for debtor banks), or for which the counterparty is unable to enforce the obligations without collateral.

3. Historical data on NPL publicized as part of financial sustainability indicators on the NBU website were based on balance sheet and off-balance sheet assets. High volumes of off-balance sheet commitments (off-balance sheet), which fell into the highest quality categories, significantly affected the NPL's share by lowering it. In future, the key NPL indicator to be published by the NBU will be based only on balance sheet indicators [4].

Let's look at changing approaches to defining non-performing assets / loans (Table 4).

Table 4

Changing approaches to defining non-performing assets / loans *

Approach	Former (acted from January 01, 2012 to February 01, 2017)	New (acts since February 01, 2017)
Terminology	Negatively classified assets / loans	Non-performing assets / loans (analogue NPE/NPL)
International comparability	Partial comparability with international standards	Maximal harmonization with international standards
Principles of determining	Negatively classified included: - all assets / loans, for which delay exceeded 90 days; - separate assets / loans with delay from 30 days and with low financial class of contractor	Non-performing assets / loans include in case of fulfillment of one of two events: - bank contractor has permitted delay more than for 90 days (30 days for debtor banks); - contractor is unable to provide completion of his obligations in established term without the procedure of mortgage collection

* Source: [7]

The concept of non-performing assets / loans (analogous to NPE / NPL) has been introduced since February 1, 2017. The main reasons for the increase in the NPL indicator from December 2016 to February 2017 were: elimination of off-balance sheet, recognition of non-performing assets of JSC CB “Privatbank” after nationalization, change of methodology of NPL calculation itself. For the period from February 01, 2017 to December 31, 2017, the share of non-performing loans increased by 0.55%.

Large part of non-performing assets is not the only problem of Ukrainian banking sector functioning. To date, imperfect legislation, inflated interest rates on loans, undervalued deposits, loss of confidence in banking sector, etc. are also of major concern. Only the National Bank of Ukraine can exert the most significant influence on resolving this situation. Therefore, the regulator proposed the necessary conditions for lending resuming (Figure 11).

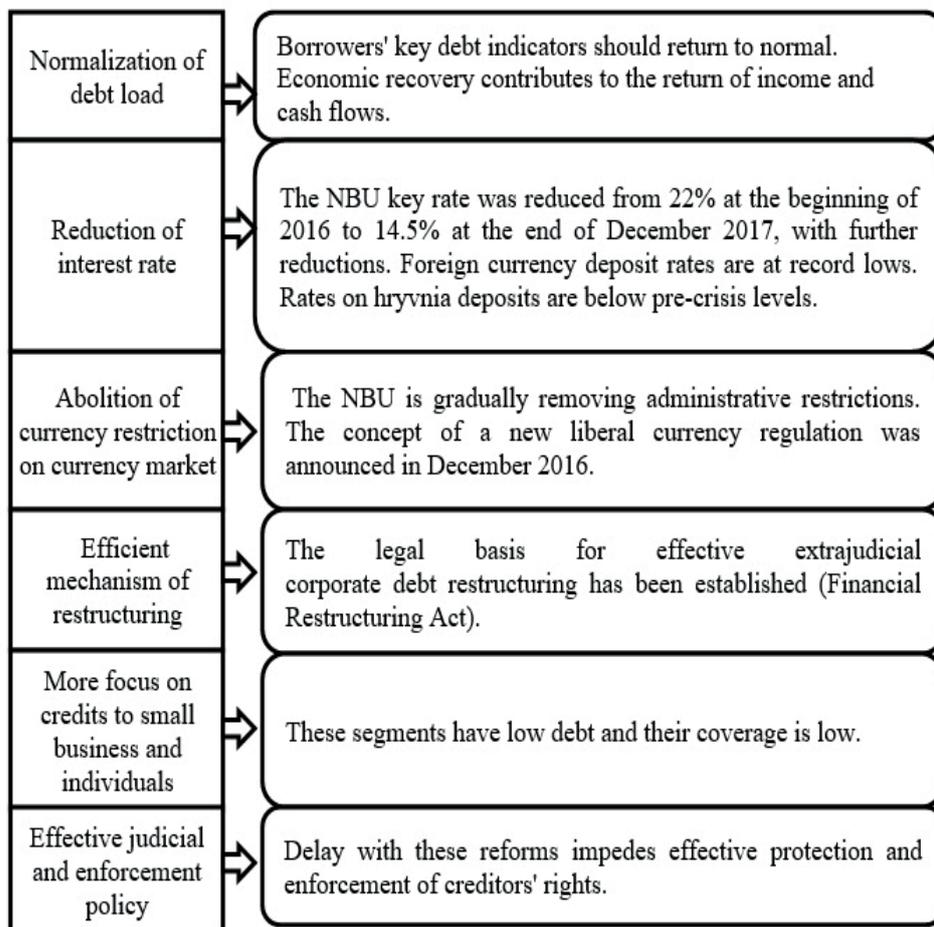


Fig. 11. Necessary prerequisites for crediting renewal*

*Source: [9]

In addition, the NBU implements the Comprehensive Program for the Development of Financial Sector of Ukraine until 2020. The reform of financial sector is aimed at achieving its sustainable development and overcoming the effects of economic crisis.

A comprehensive reform program includes three steps:

1. Solving the problems of the past (cleansing):
 - withdrawal of insolvent financial institutions from the market;
 - recapitalization;
 - disclosure of the ultimate owners;
 - identification of related party transactions.
2. Creating prerequisites for sustainable development (reboot):
 - protection of consumers, creditors and investors rights;
 - resumption of lending;
 - confidence restoring;
 - infrastructure development;
 - transformation of regulators.
3. Development of financial sector:
 - increase of long-term resources;
 - growth of assets;
 - increasing the number of internal and external investors;
 - development of capital markets;
 - pension reform [5].

Conclusions. According to the results of the study, it should be noted that during 2014-2017 the following changes occurred for successful functioning of banking sector:

1. 90 banks were withdrawn from the market (6 - due to non-transparent structure, 5 - due to self-liquidation, 7 - anti-terrorist operation zone and Crimea; 14 - due to violation of legislation; 58 - due to loss of liquidity or capital).
2. The minimum amount of authorized capital for newly established banks has been increased and which resulted in UAH 240 billion of banks registered capital.
3. Deposits of banking institutions have increased at UAH 140 billion.
4. A new mechanism for assessing banking risks has been introduced.
5. Banking system has been fully transferred to international financial reporting standards.
6. The number of NBU decreased due to the transition to a functional organizational structure.
7. The Law on Consumer Lending was adopted.

However, a number of problems remain unresolved:

1. The problem of restructuring of foreign currency loans is not solved.
2. Banking sector cleaning from the NPL's is at a slow pace.
3. Compulsory state-funded retirement insurance is not implemented and as a consequence, long-term liabilities are not secured.
4. The corporate governance system of state-owned banks has not been reformed.
5. There is no system of consumers of financial services rights protection.

The solution of these problems is the basis for a stable financial system of the state and the basis for further development and functioning of its banking sector.

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METHODOLOGICAL APPROACH TO COST MANAGEMENT IN PURCHASING ACTIVITIES: SAVINGS PLAN AND ITS IMPLEMENTATION

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Annotation. *The paper is devoted to the views of cost management in the field of purchasing activity with the help of making and realization of cost savings plan. There was presented international experience and elements of its implementation in order to improve organization's operational efficiency. The research is made with the aim and necessity of usage on the industrial enterprises and large companies with a wide sales network (banks, financial institutions, trading companies, enterprises etc.).*

Key words: *cost management, savings plan, procurement activity, suppliers evaluation, cost optimization, profitability.*

Introduction. Increasing companies' operational efficiency and their profitability especially the one that operates in the sphere of production on the wide segment of supply is always relevant. This is due to the fairly high trading network expenses and their optimization need. The operational efficiency of the company, the development stability, profitability and competitiveness on the market depends on this issue.

In the recession time, when market growth is significantly inhibited or completely absent, the relevance of cost management, operating and investment costs that are necessary for the development and operation of an enterprise is critical. According to this statement, the use and dissemination of modern international experience in managing expenditures on procurement, development and cost saving plans implementation can significantly reduce operating and investment costs, optimize them, increase the companies' efficiency and their profitability.

Literature and latest publications review which are the basis of the problem show that in national literature the cost of management method issues are sufficiently detailed covering the cycles of planning, accounting, analysis and optimization [1; 4; 5]. In most cases, research relates to industrial enterprises, they raise conceptual or educational and methodical issues.

Managing the cost of purchasing activities in foreign companies is also quite modern experience. The presentation of these issues is reflected in the categories: “procurement” that is defined as purchasing activities; “procurement organization” that is defined

as purchasing activity organization; “procurement strategy” which is defined as the purchasing strategy; “supplier relations” which is understood as relations with suppliers; “procurement tools” which is described as tools for purchasing activity.

For the first time, the policy of purchasing activities and its rules was published by the European Bank for Reconstruction and Development in 1992 and was periodically reviewed [6].

In modern literature there are publications on this subject concerning various companies and organizations: banks, universities, legal corporations [7; 8; 9; 10].

Also, previously unsolved problems are the best international experience adaptation to national realities and their detailed description for the real implementation purpose that need to be significantly studied. Mainly, this is due to the fact that today there are no national studies, which would present the best international experience in cost management, particularly in the field of management production of industrial enterprise and activity of large companies with an extensive network of supply. Such companies work in the field of trade and finance and have a high share of operating and investment costs associated with their operation. The reduction of these costs and its influence on the work efficiency increase is of significant importance.

The purpose of this work is the methodological support and justification for the cost saving plans development in conducting industrial enterprises’ activity for the effective functioning and large retailer development, as well as coverage of international experience in these tasks implementation.

Research results. Development of a plan for cost savings of procurement activities defined as Procurement Action Plan that is a complex of cost management issues. In practice, this set of issues for industrial enterprise or large company includes the following:

- cost management structure or unit set up with the corresponding functional;
- company’s expenses collection, systematization, classification in terms of articles, operating and investment expenses groups and subgroups with the supplier’s indication;
- all goods supply contracts, works and services, equipment rent and premises systematization and analysis;
- ensuring tendering for the purchase of goods, services transparency and efficiency with the condition of separation and the functions of ordering and control purchasing;
- implementation of the annual development of a cost saving plan and its regular (quarterly) monitoring that aimed at optimizing the number of suppliers, reducing prices and tariffs for goods and services, conducting strategic measures to increase operational efficiency;
- motivation system set up of enterprise’s personnel in order to increase its efficiency and save on the trading network expenses.

The development of cost saving plans, including the procurement process, should be an integral part of the measures system in order to increase the operational efficiency and profitability of each industrial enterprise and large company. This system of measures includes the concentration of operational management functions and investment costs,

improving the administration quality of procurement processes and the services delivery to internal customers within the company with simultaneous labor and financial costs minimization.

The initial stage of the cost savings project implementation should be the company's modern centralized structure (subdivision) construction, which will ensure the effective implementation of the goods procurement functions, works and services, cost management, their accounting, business administration and development of the company. The significant input of such points is defined in the research work of Landina T.V. [2], which considers practical recommendations for the making such kind of structure with a specific functional.

The cost management concentration functions require the definition of such subdivision tasks, the main of which should be:

- cost optimization through the effective procurement activities, initiation and suppliers management relations, prices and terms of business contracts negotiation;
- tenders making, initiation of inquiries and commercial offers from suppliers;
- development of treaties (contracts) for economic activities, in which a company is a buyer and a consumer of goods, work and services, also it includes administration of the processes of concordance and registration of contracts;
- management of the company expenses, control of budgets of administrative and economic expenses and investments;
- identifying and setting up control over the operational risks that arise in the work of the company's subdivision.

Consideration of these issues from the view of internal audit is presented in another research of Landina T.V., which highlights the following [3]:

- initiation of internal and external procurement automation, administration activity;
- organization and keeping accounting of business operations and assets;
- keeping records and protocol work;
- effective management of the company property (own, rented buildings, motor transport, etc.);
- organization and support of processes of opening new trading subdivisions of the company and effective maintenance of the existing ones;
- providing the optimal level of servicing external and internal clients in the conditions of budget constraints and regulatory controls;
- active participation in the management of the company, including business continuity, real estate management, security, insurance, as well as project management and strategic development.

Taking into account the foregoing, in order to make further research in this paper it is necessary to elaborate on the issues of developing and implementing a cost savings plan and the sequence of work to increase the operational efficiency and profitability of industrial enterprise or large company on specific examples.

In order to systematically cover the development and implementation of the cost savings plan, it is necessary to highlight, first of all, the main stages of the work, their

content and the sequence of actions.

The cost savings plan consists of several tables and the main ones are listed below. All information regarding the plan is presented in the tables and subject to analysis is real, but the years and the company name are not provided for reasons of commercial secrecy.

That's why, initially, all company expenses (current and one-off or operating and investment) are analyzed and distributed by separate articles (see table 1).

According to the structure of table 1, it shows the following:

- sequential allocation of expenses (column 1) allows to emphasize those which can be optimized in the process of procurement activity;
- expenses groups for two previous years ($i = 0$ year, $i + 1$ year) and the plan for the next one ($i + 2$ year);
- share of expenses and investments in the company budget;
- for the year zero is taken the year of work beginning that concerns saving from purchasing activity expenses;
- as a result of the plan development, the planned cost savings are presented;
- columns 1, 2, 3, and 6 are filled in at the beginning of work on the plan, and columns 4 and 5 are the resultant ones.

In addition, it should be noted that costs savings plans should be developed in a stable currency, because it minimizes the impact of inflation and allows to make more objective assessment and monitoring of the company performance. On this basis all data in the plan are given in US dollars in order to avoid risks from currency losses.

The analysis of Table 1 shows that 39.72% of expenses and investments of the company can be optimized, while for the first planning year savings measures have been developed for 17.83% of all expenses. The total planned cost savings amounted to \$ 5.5 million, representing 7.2% of the costs that are available and 3.2% of the costs that can be optimized. The preparation of a plan for saving expenditures for procurement activities requires some preparatory work, namely the preliminary analysis and classification of all operating and investment costs. In accordance to this aim, it is advisable to develop cost classifiers which allocate expenses into groups and subgroups, depending on their content and sectorial features of the company (industrial, financial, trading, etc.). This cost classification is presented in the form of a cost reference book, broken down into groups and subgroups. An example of this approach can underline the work of BNP Paribas Group which provides such kind of classification [7].

As a minimum, a list and description of each subset of expenses are drawn up. This is done with the aim to make the annual savings plans on the basis of a single methodological units that can be comparable over the years.

The further development of the cost management system also involves an assessment of the risks associated with the management of those or other cost groups and subgroups. For the most part these risks are determined by possible losses of funds from inefficient purchasing activities.

Table 1

Analysis of the company's expenses*

Indicators	Actual, i=0 year, USD	Planned, i+1year, USD	Planned, i+2 year, USD	Savings USD	% to the budget
1	2	3	4	5	6
Expenses + Investment	229 593 314	280 363 955	430 980 476	-5 494 411	100,00
Including					
Salary	81 007 832	125 086 715	196 430 000		
Other expenses	52 027 120	80 166 985	120 344 905		
Amortization	23 557 498	19 423 400	36 965 096		
Investment	73 000 863	55 686 856	77 240 475		
Expenses + Investment (without salary and amortization)	125 027 983	135 853 841	197 585 380	-5 494 411	45,85
Non-purchase expenses		2 644 326	3 390 680		0,79
Taxes		1 973 148	2 244 104		
Charity and sponsorship		190 723	300 000		
Notarized and state registration fees and commissions		480 455	846 576		
Non-reducible expenses (by the purchasing activities)		18 071 588	23 022 488		5,34
Events and meetings		2 871 066	3 500 000		
Security		5 326 354	8 000 002		
Consultations		9 099 800	9 972 175		
Labor protection		58 517	206 123		
Assignment		2 248 416	2 823 902		
Representative expenses		345 456	607 920		
Databases and their services		877 840	1 283 779		
Other non-reducible expenses		115 206	128 588		

Continuation of table 1

1	2	3	4	5	6
Expenses + Investment (without salary, amortization, non- purchasing and non- reducible expenses)		115 137 927	171 172 212	-5 494 411	39,72
In work (saving > 0)		73 368 594	76 828 795	-5 494 411	17,83

**compiled, calculated and presented for example by authors*

In addition, the cost and cost groups and purchasing sub-groups determine the purchasing policy and its organization, in particular the distribution of the functionality of contract preparation and signing.

In some cases, certain costs are determined by the recommended suppliers.

Below in table 2 (column 1), it presented the results of the classification of operating and investment expenses by its groups and subgroups. It also shows cost savings by planned and actual year (columns 2-6). In addition, in this table (see also its continuation) there presented information about the number of suppliers that had given at the beginning of the work (column 7), the costs of planned and actual years (columns 8, 9) and the share of expenses in work to total costs in %.

The analysis of table 2 concerning the number of suppliers (column 7) indicates that their total number is 8374, among which there are 2643 real-estate suppliers, or 31,6%; information services include 1898 suppliers or 22,7%; professional services include 1384 suppliers or 16,5%; general services include 1305 or 15,6%; marketing and communication services include 1073 or 12,8%. These groups all together make up 99% of all suppliers and have great potential concerning the optimization of their number.

Optimization of the number of suppliers significantly reduces expenses of dealing with them, improves the management of purchasing activities and increases the operational efficiency of the company, which will further increase its profitability.

That's why, the reduction of expenses involves, first of all, the reduction of the number of suppliers, consolidation of the volume of purchasing, improvement of the efficiency of dealing with key suppliers. In particular, the plan provides for the reduction by twice as much in the number of minority suppliers with purchasing volumes of less than 2 thousand euros during one year. Also there were defined tasks for consolidation of purchases from major suppliers by 40%. Among the largest suppliers were determined those with the volume of purchasing over 100 thousand euros. Moreover, there set the task concerning the development of individual cooperation with 20 top suppliers, which accounts for 42% of all purchases.

Table 2

Detailed estimation of expenses / savings / number of suppliers*

Expenses group / expenses subgroup	Savings I=0 year, KUSD actual	Savings i+1 year, KUSD company plan	Savings i+1 year, KUSD management plan	Savings I+1 year, KUSD actual	Savings I+2 year, KUSD planned	Number of suppliers i+1 year	Actual costs, i+1 year, KUSD	Planned costs i+2 year, K USD	Costs in work (savings> 0) planned i+2 year, K	Costs in work share (savings > 0) to the total costs i+2 year,%
1	2	3	4	5	6	7	8	9	10	11=10/9
Summarily	-1238	-5777	-2906	-12511	-5494	8374	280364	430980	7629	17,83%
Assignment		-42	-34		-60	177	3493	4911	1397	28,45%
Real estate		-411	-520	-57	-408	2643	48955	55852	12147	21,75%
Service costs						597	2243	2 000		
Rental cost						963	14872	23348		
Equipment					-80	192	2915		5 605	
Furniture		-65	-131			174	1812	1767		
Construction		-19	-21			132	918			
Equipment and machinery					-50	367	5973	1900	1 000	52,63%
Real estate buying				-57		45	6270	11 448		
Insurance						8	557	1337		
Professional service	-44	-104	-220	-106	-149	1384	19132	27311	7 304	26,74%
Audit			-11			3	917	780		
Road transport		-34	-36	-48	-79	573	4104	6347	3386	53,35%
Consultants				-27		37	10146	15659		
Legal service						44	1166			
Recruiting commissions		-2	-9		-20	182	672	607		
Security service	-44			-22		1	2			
Tax and consultative commissions						9	27	1 000	1 000	100,00%
Fixed-term workers						216	622			
Studying		-69	-163	-9	-50	216	1 071	2 918	2 918	100,00%

Continuation of table 2

1	2	3	4	5	6	7	8	9	10	11=10/9
General service		-84	-42	-347	-171	1305	6174	8 005	5042	62,99%
Office equipment		-78	-35	-341	-144	1183	4830	7296	4334	59,40%
Outsourcing for equipment						55	297			
Post expenses		-5	-8	-6	-27	32	952	708	708	100,00%
Commercial/ Banking service		-1248	-549	-1487	-195	175	17677	17824	7931	44,50%
Commercial/ Banking equipment										
Collection service						13	1027	1536		
Means of payment		-15	-17	-31		9	2554	663		
Outsourcing of commercial/ banking service										
Security management					-0	111	3074	5820	3	0,05%
Management of values		-1234	-532	-1456	-195	48	11 022	9805	7928	80,86%
Information	-38	-53	-95	-64	-8	1898	7282	5237	327	6,24%
Brokers						5	602	129		
Market information	-38	-53	-95	-64		16	1433	2063		
Subscriptions					-8	88	218	409	327	79,83%
Technologies	-1155	-3788	-1402	-10419	-4236	271	26787	49609	29650	59,77%
Computers	-903	-1 460	-645	-920	-1 894	22	3 176	¹⁶ ₅₇₇	16095	97,09%
Computer rental										
Computer service				-4		54	1178	1142		
Software		-88	-151	-7858	-933	34	11727	15710	3 717	23,66%
Telecommunication equipment	-244	-289	-35	-1399	-45	67	2209	1 581	759	48,01%
Telecommunication service						26	31	3 291		

Continuation of table 2

1	2	3	4	5	6	7	8	9	10	11=10/9
Telecommu- nication usage	-8	-1951	-571	-238	-1365	102	8 463	11309	9079	80,29%
Marketing and commu- nication		-46	-44	-29	-267	1073	11531	18864	13032	69,08%
Consulting services for communication						6	132			
Advertising materials		-15	-10	-5	-57	137	876	2253	921	40,86%
Publications				-25	-10	89	1107	2975	1500	50,42%
Ad slot purchase		-30	-33		-200	617	5969	8466	10611	125,33%
Research						11	492	800		
Sponsorship						88	222	218		

**compiled, calculated and presented for example by authors*

In addition, other tasks of the action plan include:

- optimization of internal processes and an increase in efficiency with regard to terms, quality of maintaining the needs of internal clients of the company. This implies the continuation of the consolidation of purchasing activities, the initiation of the development and implementation of internal SLA (service level agreement) – agreements on the service levels to meet the needs of internal customers of the company;
- creation of standards for simplification of purchasing processes and coordination of their viewing;
- transition to outsourcing concerning non-profiled business activities of the company.

Next table 3 shows the format and content of the cost-saving action plan, indicating the start and end dates of individual tasks, their descriptions, budgets of expenditures at work and planned economy. As an action description, the abbreviation RFP (request for proposal) is presented as a request for proposal that defines the goals and objectives of work, the necessary requirements and conditions, terms of completion, relationships and connections with the supplier, the size of the budget and the assessment of various options for the task.

Next, Table 4 shows the format on the content of the detailed plan for cost savings, which relate to investment (I) and operational (O).

Further specification of the plan is to identify each supplier who provides the product and service or several people in charge of purchasing, professional buyers and their cost-saving targets. On the basis of this plan there must be made monitoring of the plan implementation, determined the status of implementation, as well as the amount and percentage of the achieved savings together with savings that took place during the reporting period.

Table 3

Activity plan for i+2 year by expenses groups*

Expenses group	Start dates	End dates	Action description	Expenses budget in work (savings >0) KUSD	Savings (evaluation) KUSD	Expenses budget in work (savings >0), KUSD without added tax
1	2	3	4	5	6	7
Summarily				76 829	-5 494	66 196
Technologies	01.01	29.02	RFP mobile communication	29 650	-4 236	24 708
	01.02	31.03	RFP terrestrial telephony			
	01.03	31.05	RFP satellite channels			
	01.04	30.06	RFP servers			
	01.09	30.11	RFP network channels			
Banking service	01.01	29.02	RFP ATMs	7 931	-195	6 609
	01.10	31.12	RFP ATM service outsourcing			
Real estate	01.01	31.03	RFP rebranding and outdoor advertising	12 147	-408	10 122
Marketing and communication	01.02	30.04	RFP print service	13 032	-267	13 032
	01.04	30.06	RFP calendars and diaries			
	01.08	31.10	RFP BTL advertising			
	01.10	30.11	RFP souvenirs and gifts			
information	01.04	30.06	RFP subscription	327	-8	272
Assignment	01.02	30.04	RFP taxi service	1 397	-60	1 164
	01.01	31.03	RFP BTA (service level optimization)			
		30.11	RFP hotels (service level optimization)			

Continuation of table 3

1	2	3	4	5	6	7
Professional service	01.02	30.04	RFP recruitment	7 304	-149	6 087
	01.04	15.07	RFP fuel and lubricants			
	01.08	31.10	Vehicles (optimization)			
	01.02	31.03	RFP paper and stationary			
	01.04	30.06	RFP courier service			
	01.04	30.06	Office equipment service			
	01.07	30.09	RFP drinking water supply			
	01.07	30.09	Office materials costs (centralization)			
	01.10	31.12	RFP material costs for printers			

**compiled, calculated and presented for example by authors*

Also it should be noted that the effectiveness of purchasing activities is determined by the complex implementation of many elements, the main of which are: the organization and structure of the relevant unit; correct allocation of functional responsibilities; implementation and compliance with procedures that ensure the transparency of purchasing activities and the ability to exercise control on each stage of work, as well as the correct selection and motivation of the staff.

As a result, these processes will not only contribute to the logical planning of the company's activities, but also will provide an opportunity to increase its financial results, the meaning of which can be underlined by the basic structure of profitability that includes prudently calculated mechanism of balancing both the interdependent and multi-vectored expenditure elements.

Table 4

Detailed savings plan, fragments*

Expenses group	Expenses subgroup	Supplier	Product / Service	Budget, KUSD	Comparison base, KUSD	Optimized costs, KUSD	Estimated savings, KUSD	Savings %	Costs type
1	2	3	4	5	6	7	8=6-7	9=8/6	10
Banking service	Management of values	Renome-Smart / Lanit	Purchase of ATMs	6723	6723	6591	132	2	I
Banking service	Management of values	Renome-Smart / Lanit	Service of own ATMs	908,9	538,8	481,2	57,5	11	O
General services	Office equipment and supply		Materials for printers	1 000	1 000	970	30	3,00	O
General services	Office equipment and supply		Stationery	752,7	752,7	732,7	20	2,66	O
General services	Office equipment and supply		Cleaning tools	513,1	513,1	503,1	10	1,95	O
General services	Post expenses		Post costs	708,1	708,1	681,1	27	3,81	O
Information	Subscription		Subscription, literature	326,6	326,6	318,3	8,3	2,54	O
Marketing and communication	Advertising material		Business advertising	320,6	320,6	293,6	27	8,42	O
Marketing and communication	Publications		Business advertising (BTL)	1 500	1 500	1 490	10	0,67	
Marketing and communication	Purchase of places for advertising		Advertising (ATL)	10 611	10611	10411	200	1,88	O
Professional service	Transport companies		Car purchase	1 281,2	1 281,2	1 217,1	64,1	5,00	I
Professional service	Transport companies		Fuel and lubricants	2 104,8	2 104,8	2 089,8	15	0,71	O
Real estate	Equipment		Rebranding and outdoor advertising	5 605,1	5 605,1	5 525,1	80	1,43	I
Real estate	Real estate		Construction jobs and materials costs	4 520	4 520	4 266,9	253,1	5,60	I
Real estate	Real estate		Other equipment service	1 021,8	1 021,8	996,8	25	2,45	O
Technology	Servers	SIBis	Additional servers	2 850	4 160	2 850	1 310	31,49	I

Continuation of table 4

1	2	3	4	5	6	7	8=6-7	9=8/6	10
Technology	Software	SAP Ukraine	SAP license support	114,2	320,6	114,2	206,4	64,39	O
Technology	Telecommunications	Ukrtelecom		1 205,9	1 874,2	1 205,9	668,3	35,66	O
Technology	Telecommunications	Data group	Network channels (ground)	1 991,6	2 418,2	1 991,6	426,6	17,64	O
Technology	Telecommunications	Kyivstar	Mobile communication	1 350,4	1 350,4	1 306	44,5	3,29	O
Assignment	Assignment		Transport outsourcing	1396,9	1396,9	1336,9	60	4,30	O
Expenses under control	(savings > 0)			76828,8	79808,9	74314,5	5494,4	6,88	
Expenses under control				131910,4	134922,4	129428	5494,4	4,07	
Total				171172,2			5494,4	3,21	
Technologies	Telephone connection	Ukrtelecom	Phone connection	382	795,9	382,0	413,9	52,0	
Technologies	Software	SAP Ukraine	SAP license support (9 months)	0,00	285,5	0,00	285,5	100	
Total	Under control (savings > 0)			77210,8	80890,2	74696,5	6193,7	7,66	
Total	Under control			132292,4	136003,8	129810	6193,7	4,55	
Total				171172,2			6193,7	3,62	

**compiled, calculated and presented for example by authors*

Conclusions. The main conclusions concerning the methodology of preparation and monitoring of the cost-saving plan of purchasing activities are:

- the possibility and expediency of using this experience for industrial enterprises or large companies with wide network of supply in various fields of economy and business;
- the effectiveness and efficiency of implementation, which is confirmed in practice, namely: in the first year of implementation of approach that was presented in this paper will allow to save 2 million 906 thousand dollars or 2% of expenses, actual savings amounted to 12 million 511 thousand dollars or 9% of expenses. The over-fulfillment of the plan – was 4.3 times;
- the presence of large reserves of cost savings in the national market of Ukraine, which is explained by the fact that: almost half - 5.8 million dollars of actual economy of a total of 12.5 million dollars was achieved through functioning in the Ukrainian market; as a result of the connection to global international contracts, 54% or 6.7 million dollars have been saved; the largest volumes of economy in the Ukrainian market were achieved

in the sphere of technology - 5.4 million dollars, general services - 127 thousand dollars, professional services - 106 thousand dollars;

- the implementation and development of expenditure management in purchasing activities largely depends upon the qualifications, responsibility and ethics of the personnel involved in this, as well as ways of managing the company's administration;

- in order to increase staff efficiency, encourage additional savings, desire to receive rewards for personal achievements, strengthen compliance with work standards and business ethics, as well as prevent corruption and bribery, it is necessary to start the system of employee remuneration using bonuses, which, in addition to the requirements outlined in the paper, requires more detailed description and correct calculation of investment and operating cost savings;

- the approach to expenditure management based on the estimation of savings, the size of their individual elements and the usefulness of working with suppliers in the future will allow to stabilize company profits and ensure the proper level of its profitability.

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PUBLIC ADMINISTRATION

INSTITUTIONAL PRECONDITIONS FOR THE FORMATION OF COMMUNICATIVE RELATIONS OF STATE AUTHORITIES IN UKRAINE

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Annotation. *The issue of the establishment of communicative relations between the authorities and the public in Ukraine is researched. The scientific approaches of scientists to the definition of the concepts of "public relations" ("public relations") are described in modern interpretation. The legislative and organizational principles of information and communicative activity of the authorities in conditions of transformational changes are considered. It is proved that in Ukraine the processes of institutionalization of communicative relations of power with the public continue. It was clarified that in modernization of state administration, which is happening today in Ukraine, the necessity of establishing effective public communications of authorities with civil society actors is growing. A number of problems of the authorities concerning their communicative activities is outlined.*

Key words: *communication, communicative interaction of power with the public, state communications, public relations (public relations), "open" and "closed" public.*

Introduction. In the context of the current administrative changes in Ukraine, significant changes are taking place in relations between the state and civil society. The state and civil society are institutions that in no way oppose each other, and in the context of democracy building, on the contrary, they must increase the level of productivity of their interaction. In developed democracies, a system of public relations (public relations) is one of the mechanisms for establishing an effective interaction of power with a society. The need for communication with citizens is legally established through the authorities' commitment to inform the public of their activities, and the right to publicly express public opinion is granted for citizens. The implementation of legally established norms of communication requires the authorities to ensure the functioning of the communication process, organized by a language understandable for all its participants. Its main purpose is to establish close cooperation with civil society actors, to conduct and maintain a permanent dialogue with them, which enables us to understand the needs of society and involve the public in developing and adopting the necessary management decisions jointly. Ensuring the fulfillment of this important task becomes possible in the presence of a state communicative policy in the country, its provisions foresee the creation in state authorities of all levels of an effective system of public relations. How did the institution of public relations institutions in Ukraine (and indeed did it happen) happen? What processes preceded its formation? This research is

dedicated to this issue.

The origins of the definition of the essence of communication were M. Weber, G. Gode, G. Lassuell, P. Lazarsfeld, M. Maklyuen. are devoted researches of representatives of the communicative philosophy of Y. Habermas, K. Iaspers, A. Toffler, futurists D. Bell, J. Galbraith, J. Gerbner, N. Luman, A. Mola, T. Parsons etc. are dedicated to theory of communication, its role in society. The issues of communicative interaction between state authorities and the public were investigated by S. Black, D. Doroti, F. Jeffkins, P. Jackson, D. Grunig, S. Kattlip, R. Harlow and many other foreign scientists. Among the Ukrainian scientists, the role of information and communication was studied by B. Bebik, O. Zernetska, V.Korolko, V.Kobzhanenko, S.Kvit, G.Pocetspov, V.Rizun, O. Kholod. Interaction of state authorities in the system of public administration in Ukraine was reaserched by V. Bakumenko, N. Dragomiretsky, A. Kolodiy, O. Kruty, O. Lytvynenko, N. Nizhnik, V. Rebkalo, Y. Surmin, V.Tertychka. Researches of Ukrainian scientists E.Afonin, O. Babinova, R.Voytovych, L.Gonyukova, are dedicated to problems of dialogical communication of authorities with the public, crisis communication in political and parliamentary activity is investigated by well-known Ukrainian scientist P.Vorona.

Aim of the research is to find out the institutional preconditions for the formation of a communicative interaction between state authorities and civil society actors in Ukraine, to substantiate the importance of communication between the authorities and the public in the context of modernization of state administration, to prove the necessity of establishing and ensuring the sustainable functioning of the system of communications in authorities with the public.

Research results. The interaction of power with the public implies the existence of communication as a semantic aspect of social interaction. Finding out the essence of communication, scientists consider it as a multifaceted social phenomenon. From the standpoint of a systematic approach, communication is seen as the basis of functional management interaction, which is based on the hierarchy, subordination, differences between the statuses of the subject and the object of management. The theory of social organization considers communicative interaction as an important determinant of managerial behavior in social institutions and organizations. The marketing approach reveals the dependence of the development of management administrative and political organizations upon the external and internal conditions of communicative interaction. According to the concept of change management for business organizations, the improvement of communication strategies is a prerequisite for improving management activity, which means maintaining their competitiveness. The concept of cognitive management involves the modernization of administrative principles of administration in organizations through structural adjustment, innovation, the introduction of modern legal acts, the formation of an innovative model of social and communicative interaction of a qualitatively new level.

The analysis of the views concerning communication processes in the system of state administration revealed a tendency to change the understanding of communication

as a unidirectional impact of the communicator on the audience by means of various means to realize the necessity for bidirectional communication with the obligatory presence of feedback.

The results of scientific and practical research of the role of communication in public administration demonstrated that the level of public confidence in government institutions depends on their consistent, systematic, objective, high-quality information and communicative activities. For the authorities, an important condition for establishing effective communication with the structures of society is the constant implementation of state administrative communications. State communications are stable social interactions of the participants of the management system, which is a complex of communicative exchange of messages, knowledge, information for solving management tasks, achievement of goals, and implementation of strategies. This is a universal system that characterizes the orderly management process, organizes and actualizes the management process in the complex interaction of state-power subjects and non-governmental organizations with society. Communication between state authorities and society is an indispensable condition for the democratic development of the state, the formation of civil society. At the current stage of development of Ukrainian society, with the various transformational processes characteristic of it, occurring in various spheres of public life, the authorities of all levels have to constantly carry out systematic information and communication activities. An important condition for such activities should be the introduction of communication standards in the process of sharing information with representatives of society. The communicative interaction of power and society should foresee for an equitable, mutually responsible dialogue in the form of subjective-subjective horizontal relations, which is an absolute condition for the democratic development of the state.

According to way of communicative interaction, scientists distinguish between two types of state communications: propagandist and marketing. State communications of the propaganda type foresee rigorous information control of the authorities over minds of people, which transforms this process into manipulation of consciousness. History shows that various states, including Ukraine, often use such manipulative techniques as misinformation, technology of "white noise" (over-saturation with information), spin-doctoring (change of semantic accents of information), etc. The marketing type of communicative interaction is formed on the basis of the laws of demand and supply of information services. Such strategies include public relations (PR) and political advertising (Mai, 2011). The peculiarities of state communications of the marketing type consist in the fact that indirect, weak communicative influence is used instead of direct, characteristic for propaganda.

In the process of state PR, information is provided by the executive authorities, and at the local level, with regard to information of local importance, local self-government bodies, while at the same time, citizens are recipients in the first and in the second case. Often, state authorities, local self-government bodies are interested in assimilating information provided by citizens to other subjects of communication. However, it is

difficult to rely on its proper assimilation, since there is a risk of divergent attitude to the information message. Leveling this risk requires the creation of appropriate conditions for communicative interaction, which would maximally bring together the interests of both parties. For this purpose, public relations systems are being created in the authorities.

In the literature, there are about fifty definitions of the concept of "public relations" (English Public Relations, Public Relations, PR), which is explained, first of all, by different approaches to its study. Most researchers share the view that public relations is usually aimed at reaching a mutual understanding and agreement between people, social groups, classes, nations, and states on the basis of deliberate formation and management of public opinion.

The laconic definition of PR was given by American researchers D. Forrestool and R. Dilensneider: "PR is the use of information to influence public opinion" (Borisenko, 2008). In this case, the impact on public opinion is understood as the reporting to the consciousness of people of information that corresponds to reality. An American specialist, Rex Harlow, based on the analysis of various interpretations of this term, proposed an own definition which, in our opinion, more fully reflects the essence of this type of human activity: "Public relations is one of the functions of governance that promotes the establishment and maintenance of communication, mutual understanding and establishment of cooperation between the organization and the public. It includes solving various problems: providing management with information concerning public opinion and assisting in the development of appropriate measures; ensuring their activities in the interests of the public; keeping managers in a state of preparedness for various changes by timely anticipating trends; use of research and open communication as the main means of action " (Komarovsky, 2001).

Among Ukrainian scholars S. Pushnyak, who came to the conclusion that "public relations" is a multifaceted essence of public relations, is:

- a special management function that promotes the formation of the organization (project) and its support from the public, communication and mutual understanding with the outside environment;
- a managerial function that determines, establishes and maintains mutually beneficial relations between the organization and various representatives of the public which its success or failure depends on;
- a mechanism for solving various tasks and problems through cooperation and mutual understanding, first of all with the external environment;
- the ability of leadership of organizations to be informed of the state of public consciousness concerning results of their activities;
- the ability of the relevant management structures to respond in a timely manner to the state of affairs depending on public opinion;
- permanent communicative psychological direct and reciprocal contact of the authorities of any system with the public in order to create, form and operate a positive management image that influences the emergence of a favorable environment for the interaction of both parties;

- the possibility to choose effective instruments and tools to increase the effectiveness of management activities, taking into account public search and public expectations;
- the ability to prevent threatening situations and to find timely opportunities to eliminate such threats, as well as their negative consequences;
- the use of ethical means of communication that promote mutual understanding and social tolerance (Pushnyak, 2015).

The purpose of public relations for public authorities and local self-government bodies is to establish bilateral communication to identify common interests and achieve mutual understanding between citizens and government, based on knowledge and full awareness. The main tasks of public relations in the authorities is to create an image of an effective and competent leadership that can solve problem issues, while not compromising legitimate citizens' rights to timely access to reliable information (Terechenko, 2009). Another important task of PR-activities of the authorities is to recreate the internal and external socio-political and psychological environment conducive to the successful work of the body, ensuring the desired behavior of the public towards it. This is explained by the fact that the authorities are interested in gaining public support and reducing resistance to their actions.

From a functional point of view, public relations is a managed process that directly affects the formation of public opinion, a positive image of government actors, and therefore it is important to properly use all the opportunities available to the authorities for that.

Public relations are conventionally divided into "open" and "closed". The "open" public is a broad mass of people, a set of all social classes, classes and groups, social communities, labor collectives, government bodies, electorate of various parties and movements, media audience (media), members of various political or socio-cultural movements, consumers goods and services. The "Closed" public is the employees of firms, companies, institutions, authorities, united by the service and professional relations. The principal essence of the PR system is that it works with both "open" and "closed" public. The effectiveness of the PR services directly depends on the depth of understanding of the socio-psychological characteristics of the "open" and "closed" public, because it is the public that is the bearer of a certain mass consciousness, public opinion and social mood (Komarovsky, 2001).

In conditions of modernization of state administration domestic scientists include following important components of the activities of executive authorities in the field of "work with the public":

- planning and conducting public consultations;
- information concerning activities and explanations for the public and individual groups (groups) of the population concerning goals and content of state policy in the relevant area of public administration;
- ensuring activities of consultative and advisory bodies;
- promoting civil society development;
- assistance in carrying out a public examination of the activities of executive

authorities and a public anti-corruption expertise of draft legal acts.

The formation of the Institute of Public Relations in Ukraine began in the 90s of the last century as a response to the necessity for social change in the direction of the formation of economic and political institutions of democracy. But only since the introduction of the presidential institution (1992), when the head of state's press service was created within the Administration of the President of Ukraine, a real process of forming the basic principles of public relations activity in state authorities began in Ukraine. Then for the first time in the Law of Ukraine "On Information" (1992) a norm was established regarding the right of society to information, which was guaranteed by "the creation in the state bodies of special information services or systems that would provide access to information in accordance with the established procedure". With the enactment of this Law in Ukraine, the formation of a legal base on information and communication activities of the authorities is underway. The basic principles of information relations between the authorities and citizens were defined, among them, in addition to the right to information, it foresaw its openness, accessibility, freedom of exchange, objectivity, reliability, completeness and accuracy, legality of obtaining, using, disseminating and storing information (Article 5). The special significance of information in the relations of government with citizens is enshrined in other provisions of the same Law. Thus, Article 10 of the Law guarantees "the creation of a mechanism for the exercise of the right to information" and establishes liability for "breach of information law", Article 21 defines the main sources of information on the activities of the authorities, and Article 28 establishes a mode of access to information.

Article 34 of the Law of Ukraine "On printed mass media (press) in Ukraine" (1992), which established the right of citizens to receive publicly available information from the authorities and their officials, was of great importance for establishing relations with the public.

Another Law "On the Procedure for Covering the Activities of Public Authorities and Local Authorities in Ukraine by the Mass Media" (1997) defined the provisions regarding the procedure for accreditation of journalists and technical media workers at state authorities and local self-government bodies by registering them on the basis of official filing applications (Article 3). In turn, the authorities should inform accredited journalists in advance of important measures, plans and assistance in organizing their activities.

In Ukraine, the regulation of relations between citizens and authorities is also enshrined in the Constitution of Ukraine. Article 40 of the Constitution stipulates: "Everyone has the right to submit individual or collective written appeals or to personally apply to bodies of state power, local self-government bodies and officials and officials of these bodies, who are obliged to consider appeals and to give a substantiated answer within the time period established by law". The practical realization of this constitutional right is carried out within the framework of the Law "On Citizens' Appeals" (1996). In 2015, national legislation on citizens' appeals was improved, in particular, the Law "On Citizens' Appeals" amended the part the duty of state authorities to respond to

electronic appeals and electronic petitions. In the same year, the President of Ukraine issued Decree № 523/2015, which approved the Procedure for the consideration of an electronic petition.

The adoption of the Law of Ukraine "On Access to Public Information" (2011) was sufficiently democratic according to European norms, which provided opportunities for free information from state authorities, consolidated the necessity and forcibly forced outdated bureaucratic authorities to communicate with their "employers", that is, taxpayers in public area. A common feature of the above-mentioned laws is their orientation towards a one-way informational impact on citizens. The Law "On the Basic Principles of the Information Society Development in Ukraine for 2007-2015" subsequently corrected this legal conflict, since it introduced another, broader approach to the information sphere. The law defined the task of creating an information society in Ukraine. The provisions of the Law foresaw the reorientation of state administration to a more modern form of social development management - the system of public administration, which foresees the transition from a model of unilateral informing of citizens concerning the actions of the authorities to a two-way model of communication with the backline type "citizen - public body - citizen". Decrees of the President of Ukraine "On promoting the development of civil society in Ukraine of February 28, 2016, No. 68/2016 and "On approval of the Strategy for the development of the information space of Ukraine for the period until 2020" significantly supplemented regulatory framework concerning issues of communication between authorities.

Today in Ukraine, communication and communicative activities concerning issues of interaction between state authorities and local self-government bodies and the public are carried out by special units created in their structure, which may have different names: the press service, department, division of public relations etc. Their main function is to provide public relations, and the main task is to create a positive reputation of the authorities and their officials. For distribution in the society of information concerning the work of government authorities, PR departments use different organizational forms of communication, among them:

- issue and distribution of newsletters, press releases, reviews, photographs, video materials, information collections, express information;
- conducting press conferences, briefings, political dialogues, television debates, roundtables, press clubs, interviews with heads of government bodies, officials for media employees;
- preparation and conducting of TV and radio programs;
- provision of publications (speeches) in the media of managers or other officials of government bodies;
- creation of archives of information concerning activities of the authority;
- placing web pages on the Internet concerning the authority and its activities.

In order to create a system for informing the public of activities of authorities and achieving its transparency, a Single Web portal of executive bodies was created in Ukraine today. The portal is a central part of the electronic information system

"Electronic Government", which is intended to integrate websites and other electronic information systems of executive power bodies and provide services to citizens and legal entities through the Internet. The structure, information structure provided by executive authorities on its own websites, its registration is determined by the Government Resolution No. 3 of 04.01.2002 "On the Procedure for Publicizing Information on the Activities of Executive Bodies in the Internet". Studying the experience of other countries convinced the domestic authorities that the computer technologies of the "e-government" significantly improve the interaction of executive authorities and their structural units, reduce the inefficiency of their work. Effectiveness of the adopted government-management decisions increases, as their projects are posted on the web pages of the "e-Government" for public discussion. Entrepreneurs, scholars, and other citizens submit valuable proposals and original ideas that give a significant economic and social effect.

An example of new approaches to informing the public and ensuring transparency of government policy was the official publication on the website of the Cabinet of Ministers of materials concerning meetings of government committees, government day-to-day meetings and all government resolutions and orders. Social media (Facebook, Twitter, Youtube, etc.) belong to the new tools of interaction between state authorities and public, which are also used by government institutions.

Conclusions. Today, institutional conditions have been formed in Ukraine for the implementation of communicative interaction of state authorities with public. The processes of institutionalization of communicative relations between the authorities and the public have become sustainable and continue to deepen. The authorities generally fulfill the obligation to inform the public of their activities through public relations systems, which became an obligatory element of the structure of the authorities at all levels. On the way of becoming civil society in Ukraine, the state continues to form conditions for active participation of citizens in management processes and their involvement in the adoption of managerial decisions. Involvement of the public in state-building contributes to the development of strategies for solving particularly important and controversial issues of state governance and social progress. With the participation of the best representatives of civil society, development programs are created, the quality of public authorities' work is assessed.

At the same time, there are a number of problems in Ukraine regarding the issues of communicative interaction between authorities and the public. There is a necessity to improve the information provision of public administration, there are problems with the promotion of state policy. Clarification of government policy, government and government actions as a whole is blurred, not systematized, spontaneous and often not predictable concerning their consequences. The processes of information exchange between the public, mass media, state authorities, and other actors of civil society are difficult. The abovementioned demonstrates that the formation of democratic traditions in Ukraine in the country's management, which exist in developed countries of the world, is incomplete in Ukraine, so far insufficient attention from the authorities to such

an important component of the democratic development of the state as systematic public communication with representatives of society.

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MECHANISM OF PUBLIC AND PRIVATE PARTNERSHIP IN THE FRAMEWORK OF MANAGING SUSTAINABLE DEVELOPMENT OF TOURIST DESTINATIONS

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Annotation. *The advantages of public and private partnership as a special form of realization of economic interests of the state, business and citizens are demonstrated. The perspective forms of public and private partnership are generalized. The positive effects of the implementation of public and private partnership for sustainable development of tourist destinations are described. The features of public and private partnership in the field of sustainable tourism management are revealed. The suggestions for improvement of the mechanism of regulation of public and private partnership in the sphere of tourism are formulated taking into account the negative consequences of the economic crisis and the best European practices.*

Key words: *public and private partnership, sustainable development of tourism, development of tourist destinations.*

A new paradigm for the development of civilization focused on the principle of environmentally sound social and economic development, responsible management of entrepreneurial activity, conservation and restoration of natural resources, historical and cultural heritage can not be implemented without cooperation of state and local authorities with representatives of the business sector. Such cooperation is revealed in the effective communication of all participants of the public relations - representatives of the public and private sectors a significant element of which is public and private partnership (hereinafter - PPP). In modern literature, much attention has been paid to the question of the organizational forms of PPP which are widely used in the world practice and quite successfully implemented in the Ukrainian economy.

A lot of scientific researches of the Ukrainian and foreign scientists have been devoted to the research of the problem of PPP, theoretical and applied aspects of implementation of this multifunctional tool for solving socially important problems in Ukraine, namely of T.B. Lebeda and I.V. Zapatrina, T.I. Yefymenko, K.V. Pavlyuk, E.L. Cherevykov and others. They consider PPP in the context of problems of the state management of economics. In this respect, it is of great interest to study and synthesize the European experience (both at the level of the EU management authorities and at the level of decisions of national authorities of certain countries) concerning establishing effective mechanisms for cooperation between the public and private partners, introducing self-regulatory practices in the field, delegating powers in the regulatory sphere, intensification of investment and innovation support for the development of tourism and resorts.

The relevance of research on sustainable tourism development is based on the fact

that tourism is one of the main social and economic activities in many countries of the world and has a wide impact on economic growth, employment and social development. It can be a powerful tool in the fight against economic decline and unemployment. As a type of economic activity and an important social institution, tourism is an important sector contributing to economic, social, political and cultural development. And this in turn has a positive effect on the process of diversification of the region's economy, replenishment of local budgets by raising tax revenues from business entities and individuals as a result of increasing the number of enterprises and creating new jobs, as tourism development provides an incentive for developing related industries that are directly involved in the service of tourists during their journey, namely: retail, catering, hotel business, household services, communications, manufacture of souvenirs and other tourism goods, agriculture, food industry, construction, advertisement, excursion activities, culture, entertainment and more. According to the World Tourism Organization (UNWTO) studies, tourism development has a direct impact on the development of more than 50 related economic sectors.

Competitiveness of the tourism industry is closely linked to its sustainability since quality and intensity of tourism activity has a significant impact on the natural and cultural environment and social development of the local community. Sustainable tourism is considered to be a form of tourism that promotes long-term resource management in order to meet economic and social needs, support cultural integrity, natural conditions and the environment. Problems of formation of mechanisms for regulation of sustainable development of tourism and resorts as a socio-economic sphere are investigated in the works of the Ukrainian scientists N.I. Vedmid, S.V. Zakharin, M.V. Subota, T.I. Tkachenko and others, the conclusions of which have been used in the study of the proposed topic of the dissertation.

In 2015 the UNO summit approved the Sustainable Development Goals till 2030. On January the 1st, 2016, the economic part of the Ukraine-EU Association Agreement - Deep and Comprehensive Free Trade Area [1] entered into force.

Ukraine faces new challenges of updating the Sustainable Development Strategy "Ukraine 2020" [2] in line with the 17 UNO Sustainable Development Goals, on the one hand, and the new EU Trade for All strategy, on the other.

Sustainable development is a fundamental objective of the European Union as enshrined in the EU founding treaties, the Europe 2020 Strategy [3] concerning inclusive and sustainable growth.

Sustainable growth is one of the three priority areas in the Europe 2020 strategy. It has a clear focus on promoting the competitiveness of the EU economy, including capitalization and leadership in clean technologies, promotion of intelligent networks, improvement of business environment, especially for small and medium businesses as well as determination of the choice of consumers.

Concerning environmental goals the sustainable growth is to reduce greenhouse gas emissions, promote efficient and sustainable use of resources, protect the environment and prevent biodiversity loss.

Intellectual growth, another priority of the Europe 2020 strategy, means enhancing the EU's effectiveness in education, research / innovation and digital society. This should be done at the expense of: encouraging people to learn, seek and update their skills; improving academic knowledge and efficiency of universities; creating new products / services that generate growth and jobs and help solve social problems; outspreading information and communication technologies.

Comprehensive growth which is the third pillar of Europe 2020 contributes to the growth of employment in Europe. This entails creating more and better jobs, especially for women, young people and older workers, helping people of all ages anticipate and manage changes through investment in skills and training. It also includes modernizing labor markets and social security systems, ensuring that the benefits of growth are tangible across the EU.

The strategy of sustainable development of Ukraine should determine the transition from a purely economic development model to finding the optimal balance between the three components of development - economic, social and environmental, and form a coherent system of strategic and operational goals for the transition to integrated economic, social and environmental development of the country by 2030. The implementation of this model requires the formation of a system of public governance for sustainable development, a necessary prerequisite of which and its important component is good governance. The implementation of the Strategy should be accompanied by the National Action Plan (Roadmap) of Ukraine's transition to sustainable development.

Today, sustainable development and sustainability is an integral part of the debate on how tourism should use natural and social resources to generate economic benefits. This has led to a gradual recognition that public and private sector representatives must take into account the balance between maximizing economic benefits, minimizing social and cultural impact on the local population and tourists, and protecting the environment. Globally, several world organizations have put sustainable tourism on their agenda – those organizations are the UN World Tourism Organization (UNWTO) [4] or the Global Sustainable Tourism Council (GSTC) [5]. Similar initiatives are reflected in Europe and developed and implemented by the EU institutions such as the European Commission and the European Environment Agency, the Council of Europe through the European Institute of Cultural Routes. All these measures seek to reduce the practical difficulties of applying the theoretical concept of sustainable development to various stakeholders, including a host community / a destination, tourism business, politicians (mainly at local and regional levels), non-governmental organizations, networks, clusters and tourists. In general, one of the main problems remains the complexity of the concept of sustainable tourism.

Therefore, we can state the necessity and urgency of introducing modern tools of destination management in order to develop the tourism industry of Ukraine on the principles of sustainable development. Such a modern tool is ETIS, the Environmentally Sustainable Indicator System [6], which is a common methodology for the sustainable management of destinations. The methodology is designed as a local process that

manages the process of collecting and analyzing data for the overall purpose of assessing the impact of tourism on the destination. ETIS has been specifically designed for tourism destinations so that to monitor productivity and help the population develop and implement their sustainable development plans with a long-term vision. ETIS is a tool of voluntary management. The results of its monitoring are based on self-assessment, observations, data collection and analysis by the destinations themselves. ETIS does not set minimum values to be achieved and does not provide for any certification. However, by defining a set of key indicators, ETIS provides the destinations with the basic information they need to monitor sustainability and manage tourism more effectively. The ETIS toolkit provides initial support (guidelines) and clear explanations of indicators (basic and additional) and their use. It also shows how ETIS complements other existing instruments and methodologies at the international and European levels.

PPP is recognized by world practice as a key tool for addressing important issues of balanced development at regional and local levels. Focusing strategic plans solely on the use of budget funds does not allow the authorities to implement large-scale strategic projects that shape the competitiveness of territorial social and economic systems. By engaging private operators to the implementation of strategies, it becomes possible to release part of the budget funds for directing them to other priority areas of balanced development as well as for attracting the private sector's experience and business approaches to the public sector. The PPP mechanism continues to occupy a leading position in the scientific research of foreign scientists who, despite its worldwide recognition, touch on the feasibility of its implementation in the light of the problems associated with realization of the 2030 Agenda for Sustainable Development. At the same time, in our opinion, Ukraine lacks sufficient attention to exploring PPP opportunities as a tool of economic development of our country's regions.

Analysis of recent publications on issues and identification of the parts of a common problem unsolved earlier. A lot of works are devoted to organization of providing state support for the development of tourism, hotel services and health resort, including with the use of PPP mechanisms. However, the question of use of PPP in tourism and resorts in times of economic crisis, including in the context of tight budget constraints and a lack of investment, remains unresolved. Therefore, scientific and practical proposals aimed at implementing modern forms of realization of PPP mechanisms in tourism and resorts should be developed, taking into account the current social and economic situation. On this basis, promising tools of the state support for tourism industry development should be highlighted [7].

PPP in tourism is most often seen as a dialogue and as a feedback tool. It is the basis for monitoring effectiveness and efficiency of the activities. It should be noted that the most widespread form of PPP today is still a concession, a contractual agreement under which the state transfers rights to use a specific object to a business. Taking into account a historical aspect of the formation of interaction between state and business structures provides an opportunity to identify mechanisms for improving efficiency of modern projects in the field of public and private partnership [8].

Analysis of the legislation of Ukraine in the sphere of regulation of public relations arising from the implementation of PPP, in particular, the provisions of the Law of Ukraine “On Public and Private Partnership in Ukraine” [9] has revealed that it provides for the possibility of concluding contracts not only by the state (the Cabinet of Ministers of Ukraine and central or local executive bodies or economic entities operating on the basis of the state ownership and authorized by it) but also local governments and/or territorial communities. At the same time, local governments will be able to independently decide on the list of communal property objects in respect to which it is advisable to use possible forms of partnership with a private partner as well as conditions for competitions. In this case it is determined that the transfer of state or municipal property objects to a private partner in order to execute a contract does not involve the transfer of ownership of those objects to a private partner. During implementation of the project such objects are not subject to privatization, and the property created by a private partner under a contract belongs to state or communal property. Except as stated above it is important to lay down provisions on the general terms and conditions of competitions and to conclude contracts within PPP with a mandatory analysis of the economic and financial aspects of the project implementation, social consequences, risk analysis as well as state control and state guarantees. Among the guarantees, the conditions of inadmissibility of worsening conditions of implementation of projects within the framework of partnerships by changes to the legislation, non-interference with a private operator’s activity on the part of the state and local self-government bodies, preservation of the conditions of the concluded contracts throughout their term of validity and others stand out. In our view, this should help to increase private operators’ interest in the economy of the regions as they will have the confidence to achieve the expected results. However, it should be noted that although one of the main benefits of PPP is social responsibility and public accountability the Law does not provide for reporting of the state and local authorities on the terms of concluding contracts and their fulfillment. We think that adoption of a single law to regulate relations between the public and private sectors is important as it allows taking into account the common features of possible forms of such cooperation and establishing common principles and requirements. PPP projects are of great importance at the level of local self-government. A major burden concerning implementation of many projects of social importance fall to cities’ and towns’ (utilities) lot: maintenance of roads and transport, social infrastructure, water resources and environmental protection, housing, water treatment facilities, energy and gas supply, etc. in good condition. The main problem faced by the communal authorities is the lack of financial resources. That is why at the level of local self-government it becomes necessary to involve private capital in solving urgent social and economic problems. However, the list of advantages that this mechanism entails does not mean that the PPP concept has no drawbacks.

Attracting private capital to restore cultural and historical sites and “bring” them to the level of tourist display can be a significant factor for the development of inbound and domestic tourism.

Among the possible PPP tools in tourism the following can be distinguished:

- a state contract is a type of contracts that provides for contracting for state purposes.
- a concession agreement - objects of contractual relations (property, certain types of activity) are indivisible, fully owned by only one party to the agreement, namely the state or other public-law educational institution, and the other party to the agreement - a non-state entity - accepts certain obligations in exchange for the rights granted to it.
- financial leasing - one of the forms of credit under which the property object is transferred to long-term lease with subsequent right of redemption and repayment.
- lease relations that cause a transfer of other's property into possession and use temporarily and on return basis.

In our opinion, the most promising tool for Ukraine is a concession since it provides for the possibility of restoration of various natural, cultural and historical sites, with subsequent use for tourism purposes in accordance with the approved project and contract. In this case the object of concession is in the state ownership.

We consider that one of the promising directions of PPP in the sphere of tourism in Ukraine is the transfer of architectural objects of historical significance (above all - castles) as well as objects of architectural museums to concession. In Ukraine, to one degree or another, more than 200 castles or castle objects potentially suitable for tourist display have been preserved (subject to creation of an appropriate tourism infrastructure). In addition, there are several fairly large open-air architectural museums and museum complexes in Ukraine (the most famous are Pirogovo Reserve in Kyiv, the Museum in Pereyaslav-Khmelnytsky, the Museum of Folk Architecture and Life in Uzhgorod, etc.). These objects are already coping with the tasks of tourist display as well as carry out various actions aimed at attracting tourists (holding holidays, fairs, exhibitions, folk festivals, supporting the work of catering establishments, sales of souvenirs, etc.). However, the objects of display (houses) in these museums are in a critical condition and require urgent repairs needing investments.

The state and local communities do not allocate money for reconstruction and restoration of castles and museums due to lack of funds in the respective budgets. It is in this case that the investment can be obtained at the expense of a private investor who wishes to engage in concession activities.

The global hotel industry has about 350,000 hotels which are represented by more than 1.6 million modern rooms. Moreover their number increases annually by an average of 3 - 4% [10]. Currently, Ukraine has 2.5 thousand hotels and more than 10 thousand tourist and leisure facilities for 620 thousand places but they need modernization and reconstruction in accordance with international standards. In addition, recreational areas, cultural and architectural monuments of Ukraine, other tourist or sightseeing objects also need to be maintained in good condition. And this, accordingly, is the basis for the development of PPP.

Ukraine is also experienced in transfer of cultural and historical objects to concession with tourist purpose. Let us analyze this practice on the example of Lviv region which has considerable tourism potential and relatively developed tourist infrastructure.

Ukraine has some experience of transferring cultural and historical sites to

concession in order to intensify tourist flows. Such concession agreements were concluded on December 30, 2009 between the Lviv Regional State Administration and I.I. Novosad, the entrepreneur, and on November 10, 2010 between the Lviv Regional State Administration and the Limited Liability Company “Kris”.

The subject of the first concession agreement is the transfer of a 19th-century palace, a monument of architecture and city planning of national importance to the concessionaire for 49 years, No. 1424, Resolution of the Council of Ministers of the USSR dated September 6, 1979 No. 442, in the village of Tartakiv of Sokal district of Lviv region, being in an emergency condition (according to the certificate of technical condition) and the right to withdraw and restore the palace (the object of concession) in accordance with the requirements of the emergency condition (make a roof, drainage system, sewer, restore functionality of all emergency elements), to improve, renovate and restore the palace substantially in accordance with the requirements of the Law of Ukraine “On Protection of Cultural Heritage” and other applicable monument protection legislation and to operate and manage the object of concession to meet social and cultural needs. Under the terms of this agreement, the concessionaire carries out the following main activities, works, services: tourism, hotel services, trade, including alcoholic beverages and other concession required for operation of the object of concession (clause 35 of the Agreement).

According to the terms of the second agreement, the subject is the transfer of the 17th-century castle, a monument of architecture of national importance, No. 486, Resolution of the Council of Ministers of the USSR dated August 24, 1963 No. 970, to the concessionaire in the village of Stare Selo of Pustomytsky district of Lviv region, which is in an emergency state (according to the report on mechanical condition) and the right to withdraw it from emergency (to carry out a complex of conservation works of defensive walls, to make drainage, sewerage, to restore all emergency elements functionally), to improve significantly, to restore and rebuild the complex buildings partially with preservation and restoration of the basic planning structure, the castle facades, to perform works on the corner towers restoring white stone attic (the object of concession) according to the requirements of the Law of Ukraine “On Protection of Cultural Heritage” and other applicable monument protection legislation and to operate and manage the object of concession in order to meet public and cultural needs in the field of tourism, recreational, educational and other related services subject to payment of concession fees and performance of other conditions of the agreement.

Analysis of the consequences of implementation of the specified concession agreements does not give rise to optimism. The main reason is the lack of conscientious fulfillment of obligations on the part of the private partner and the absence of appropriate measures to support and promote those tourist display facilities on the part of public partner in the person of the Lviv Regional State Administration as well as the decrease in the overall tourist attractiveness of Ukraine due to the military conflict in the East of the country, overall decline in solvent demand in the tourist services market, political and economic instability, unattractiveness of investment climate and as a result – the lack of

the concessionaire's motivation to make massive investment into the facility.

Potential disadvantages of PPP include:

- a higher cost of capital for private sector which should be recommended through savings due to a properly executed tender for the project implementation and greater private sector productivity;
- limiting of financial resilience of the public sector through long-term commitments under a partnership agreement;
- more complicated, costly and time consuming process of implementing the concept of private and public sector partnerships: implementation of this process requires involvement of appropriate means, both public and private.

Indeed, the implementation of PPP mechanisms in practice may have some problems. But we do not share the view that society does not need partnership since these negative phenomena are only possible if PPP projects are poorly structured, many significant points will not be reflected in agreements with private sector representatives. In order to avoid these negatives, high qualification of representatives of local authorities, relevant laws and well-defined mechanisms of their implementation are required. "It is necessary to address such issues as adhering to fair and transparent procedures of partner selection, assurance of getting added value, fair for all means of encouragement, reasonable dispute resolution, ability to withstand new challenges in order to increase overall reliability of PPP services" [11]. In such circumstances, one can count on positive effects of a public and private partnership.

Conclusions. In our view, the issues of a public and private partnership in the field of tourism should be solved on the basis of a clear and ambitious program of sustainable development of tourism aimed at a careful attitude to the environment, preservation of intangible heritage objects, attraction of investments, and that systemic investments, aimed at creating a modern and powerful infrastructure, creation of new jobs and stimulation of self-employment of the population, introduction of advanced service technologies, support of promising objects of display, etc.

The implementation of public and private partnership in the tourism sector can solve many problems that have arisen at the moment. In the future, it is advisable to conduct more thorough research evaluating the benefits of using the tourism industry management model in Ukraine using the PPP mechanism which aims to make public administration more transparent and understandable, easy to involve businesses in joint asset management, eliminate legal contradictions, causes of corruption and ineffective property management, to increase profitability of the industry and to enlarge its contribution to the state GDP.

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PEDAGOGY AND PSYCHOLOGY

PSYCHOLOGICAL AND PEDAGOGICAL ASPECTS OF THE DEVELOPMENT OF THE SOUL ACCORDING TO Z.FREUD

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Annotation. *The article examines the psychological and pedagogical aspects of Z. Freud's research into human behavior and analyzes actions from the point of view of the subconscious. The author analyzes the main works of Z.Freud and pays special attention to the words "Freud's mistake", which is still used today by professional people, scientists and politicians, etc. Many scientists continue to study the process of accepting certain facts subconsciously today, based on the works of Z.Freud etc. His works today have thousands of supporters and as many eminent critics, let us try to understand the secret of his psychoanalysis.*

Key words: *psychological and pedagogical aspects of the development of the subconscious, psychoanalysis, consciousness, etc.*

Z. Freud's father took great care of his son, he was given a separate office and a gas lamp, while the rest of the children studied by candlelight. Z. Freud was born on the 6th of May 1856 in Przibor, now the Czech Republic, in the family of Jewish immigrants from Western Ukraine. Father - Jacob was born on the 18th of December 1815 in the town of Tysmenytsia, now Ivano-Frankivsk region. Here he married for the first time. After his wife's untimely death, he married again. Grandfather - Solomon Freud - a native of the famous city of Buchach, Ternopil region now. The city was founded in the 13th century and was famous for its weaving manufactory. It is believed that the burial of his grandfather and other ancestors of Sigmund Freud along his father's line should be in Buchach. Mother - Amalia Natanson was born in Brody, Lviv region now of Ukraine, and studied in a gymnasium in Odessa.

Jacob Freud continued his family business. At that time, the development of a large industry was advancing into small business. In search of earnings, Jacob Freud was forced to move with his family to Vienna. Since Amalia Freud studied in Odessa, where her brothers stayed, Jacob tried to expand his business in Odessa. In his 70 years, he went on a long journey to an unfamiliar city. Here he opened a shop. But he came across a criminal situation. In Odessa, at that time, the Sonic Golden Handle flourished, and the Moldovan kings laid siege to everyone. Allegedly this tribute seemed too great and he refused to pay. One night, his shop burned down. Freud's father returned to Vienna. However, Freud's connection with Odessa did not end there. Sigmund Freud started

correspondence with Ukrainian psychoanalysts and in 1914 even noted that there was a marked psychoanalytic movement, unlike in America and France.

Finally, it was from Odessa that Freud had a patient who became a legend of psychoanalysis and who was nicknamed the Wolf Man. Odessa psychiatrist Leonid Drosnes brought 24-year-old Sergiy Pankeev from a wealthy landowner's family to Freud in Vienna. Pankeev had signs of depression associated with nightmare dreams of wolves. Freud treated him for some time and described this case in the monograph "From the history of one child's neurosis." It so happened that throughout his 83-year life, Sergei Pankyev was supervised by psychoanalysts. All the material related to him and his confession were eventually compiled into a single book, entitled "The Man - The Wolf and Sigmund Freud." Anna Freud, the daughter of a psychoanalyst who also became a well-known scientist, said in a preface that psychoanalysis helped Sergei Pankyev live a decent life without fears and depression.

Z. Freud's father died in Vienna in 1896 at the age of 81. It is this year that Freud uses the word psychoanalysis for the first time in his article, and it is from this year that the history of this teaching begins to count. So today psychoanalysis is 120 years old. It was the death of his father that led to a deeper understanding of himself and as a result of the birth of psychoanalysis, as Freud notes in the preface to *Dream Interpretation*. Mother - Amalia Freud lived 95 years and died in Vienna in 1930. Sigmund had a warm relationship with her mother. Amalia was considered an attractive woman. The mayor of Ischle, where Amalia spent the summer, greeted her with a ceremony bouquet of flowers every year for her birthday. When Amalia turned 90, the mayor brought her a beautiful scarf as a gift, but Amalia refused, saying that the scarf was giving her years. Shortly after the death of his mother, Freud, who was also very ill, wrote to his student and friend, Ferencie: "I did not have to die while she was alive, now I have this right."

So, having graduated from an excellent grammar school, Sigmund joined the University of Vienna, founded in 1310, which today remains one of the most respected higher education institutions in the German-speaking world. It was a time of faith in the omnipotence of the human mind. The giants of science were Helmholtz and Bruckke. In a letter to the bride Martha dated October 18, 1883, Freud wrote, "Helmholtz is one of my ideals," and he calls Ernst Bruckke the greatest authority he has ever met. It was up to Bruckke, who was the director of the Institute of Physiology at the University of Vienna, and got Freud. The study of acne led to Freud's study of the problems of the structure of the nervous system of fish, crustaceans, etc.

Studying physics, chemistry, zoology, biology, as well as experimental work formed Freud as a naturalist, naturalist. However, he attended optional lectures on logic and philosophy, read by the famous Brentano. After studying the simpler forms of fish, Freud begins to study the comparative anatomy and histology of animals as well as humans. He strives to devote himself to pathology and clinical practice. And although he writes articles for the general medical dictionary of Villare, in which one can already identify Freud's future, in particular "Aphasia", "Brain", "Paralysis", still Freud continues to work in the field of practical medicine. His series of articles on polio are of great respect

to Freud by experienced physicians. In particular, Swiss neuropathologist Broome said that these brilliant studies would be enough to permanently etch Freud's name in clinical neuropathology. The turning point that changes Freud's scientific interests from physiology to, in effect, psychiatry is the journey to Paris for Charcot.

Jean-Martin Charcot is now widely known primarily because of his Charcot shower - a healing procedure: alternating cold and hot water under pressure of 4 atmospheres. In fact, during Freud's time, he was a scientist with a world name. In 1883 he became a member of the Paris Academy of Sciences. The Charcot internship at Salpêtrière Hospital was considered a great scientific achievement. Salpêtrière, where Sharko joined the internment, was initially a shelter for homeless people, the terminally ill, and even earlier had a prison for women convicted of theft and other crimes. For a while, Jean Martin Charcot turned Salpêtrière, located in the 13th arrondissement of Paris, into a world-renowned medical and scientific center where doctors from different countries dreamed of studying.

Jean-Martin Charcot specialized in patients with hysteria. Symptoms of hysteria were paralysis, contractures, tremors, convulsions, loss of sensitivity, gestures, spasms and more. Through hypnosis, Sharko tried to treat even Parkinson's disease. Among doctors from different countries, Sharko received the "honorary title" - Napoleon neuroses and hysteria. In particular, he managed to eliminate such hysterical symptoms as limb paralysis, blindness, deafness. Rose Dadun writes: "The effect of Sharko's words was astonishing:" He spoke and the symptoms disappeared, disappeared, he spoke and the symptoms returned, renewed. The word carried hypnotic suggestion and removed hysteria. , with naive realism and expressiveness reflected in the painting by Andre Bruyer, which Freud hung in his office since then, has not parted with her". In a letter to Freud of that period, before his bride, Martha wrote: "I had to leave his lecture with the feeling that I was coming out of Notre Dame, filled with a new idea of perfection."

Freud's return to Vienna was not triumphant. He did not receive the halo of glory and did not gain wealth. Moreover, the message in the Society of Physicians (Vienna 1886) about hysteria in men was perceived hostile. The myth that hysteria can be found only in women prevailed, since from the time of Hippocrates was considered a female disease, and the word Hysterion - from the Greek is translated as a uterus. Charcot investigated the true nature of the disease and found it in men. Freud supported the scientific position of Charcot.

On the 13th of September 1886 he married his beloved Martha Berne, to whom from the time of his engagement (1882) he wrote 900 letters to his marriage. She bore him six children - Matilda (1887-1978), Martin (1889-1969), Oliver (1891 - 1969), Ernst (1892-1668), Sophie (1893 - 1920). and Anna (1895 - 1982). The true follower of his father became only known throughout the world is Anna Freud. How does a psychoanalytic method of Sigmund Freud appear as a result of neurological practice, anatomical studies of the central nervous system, psychiatric practice?

In the wake of Napoleon's hysteria, Freud sought to use hypnosis. He formulates his successes in the treatment of hypnosis in an article published in 1892. He reports the case

of a woman who could not breastfeed her baby because she had symptoms of hysteria - vomiting, anorexia nervosa, insomnia and agitation. Freud's hypnosis sessions managed to eliminate all the negative symptoms. The same thing happened to this woman the following year when she gave birth to her second child. Freud concluded that antithetical thoughts that blocked the natural attraction of a woman trying to feed her baby were decisive in this case.

Hypnosis has not always been successful. Today it is known that hypnosis is subject to all. This is what keeps the theater, cinema - all art, religion, politics, as well as many other spheres of public life. But not all people perceive hypnosis equally. In a hypnosis session, you can see the following pattern. The hypnotist invites viewers to close their hands. He then asks who can't open his arms. Lift them up. These are the people he invokes on stage to show his experiments. It is well known that in every audience there are three percent of the people who are especially subject to hypnosis. But Freud became more and more convinced that he was not always able to succeed through hypnosis. For patients who were severely hypnotized, Sigmund Freud developed a special technique. He easily touched the patient's forehead with his hand and invited him to dive into sleep. There was a double suggestion - the doctor himself and the patient's self-suggestion. It was the next step to psychoanalysis, when the power of hypnosis receded into the background.

Even further they went with their friend Joseph Breuer. One day, Breuer said he had such a case. He treated the hysteria patient Anna O. (real name is Bertha Pappenheim). Breuer used his so-called cathartic method. He consisted in immersing the patient a little in half-sleep and asking them to tell them about their symptoms, or just painful experiences. At the end of the session, the patient, who spoke about their problems, suddenly began to feel well. Freud was particularly interested in this case because hypnosis did not play a paramount role here. There was another reason why Dr. Breuer chose to pass on Freud to Madame Anna O. After many months of treatment, the doctor and patient became so close that it began to threaten Breuer's family life. As it turned out, Anna O. was strong in nature. After a while, she herself became a psychoanalyst and, returning to Germany, led the women's movement for emancipation.

Anna O.'s treatment worked, and the case was described in an article in "The Study of Hysteria", co-authored with Dr. Breuer in 1895. Some people start counting the history of psychoanalysis from this article. However, Freud was still not satisfied with the degree of physician intervention in the patient's mental world. Did the doctor dictate the answers to the questions he asked himself? Removing himself from the mental world of the patient as much as possible and contemplating this world as if from a side would enable him to develop the method of free associations - said Freud.

Ernest Jones writes that Freud's method of free association has matured for a long time. Freud felt it intuitively, but his suggestion and reinforcement of the assumptions was read by him Ludwig Berne's book "The Art of Becoming an Original Writer in Three Days" (1823). In particular, the author suggested such a practical rule. Take a few sheets of paper and write down anything that comes to your mind within three days. Write

everything you think about yourself, your successes, the Turkish war, the Goethe, the criminal process and the judges, your superiors - and in three days you will be amazed at how many completely new, unknown ideas you have hidden. This is the art of becoming an original writer in three days.

So, Z. Freud freed himself from hypnosis, tapping his forehead, the cathartic method. He left only one "matter" for study - the word of the patient. The word is in this case a scientific metaphor, because in fact it is about such concepts as language and speech (Ferdinand de Saussure), discourse (in the sense of Roland Barthes). But here we will use them as synonyms, though these are whole theories and philosophical systems of the XX - XXI centuries. Freud singled out "matter" - a speech stream of a patient who was almost unaffected by a doctor. As he once examined anatomical acne under a microscope, so now with the scrutiny of a naturalist from the perspective of a psychoanalyst, he dissected and studied the verbal tissue of his patients. "Surgery" of the human mental world allowed Freud to put on a scientific basis the mysterious, hidden, incomprehensible inner space of the individual.

The method of free associations and the tireless energy of Freud, according to the French psychologist and philosopher Jacques Lacan, have made a "Copernican revolution" in the views on the indomitable and unique mental world of man. First of all, Freud developed the concept of mental organization, identifying three structural elements of personality: "It" (or "Eid" - it. "Das es"), "I" (or "Ego" - German. "Ego") and "Nadia" (or "SuperEgo" - Das Uberich). "It" is an unknown force that influences human behavior and actions, as well as two other structural elements. "I" - the mind of the person who controls the psyche and the interaction between instincts and behavior. "Nadia" - the highest authority - is self-observation, and ideals, and conscience, and censor, and judge. Meeting the resistance of students, friends, and society, Freud still insisted on creating a theory of phases of psychosexual personality development. He also belongs to the development of the theory of the Oedipus complex, the detection of functioning in the psyche of defense mechanisms, the opening of the transfer and counter-transfer, the creation of - therapeutic methods such as the method of free associations and interpretation of dreams.

Some philosophers consider Freudism to be one of the major worldview systems of the twentieth century. on a par with Marxism and Christianity. The complete collection of Freud's works in 24 volumes was made in English in 1953 - 1974 with the participation of Anna Freud ("The Standard Edition of the Complete Psychological Works of Sigmund Freud" - a reference to this edition in the US is considered scientifically correct and obligatory). All of Sigmund Freud's works are difficult not only to view, but to list. However, the most important are: "Studies of Hysteria" - 1895, "Interpretation of Dreams" - 1900, "Psychopathology of everyday life" - 1901, "Three essays on the theory of sexuality" - 1905, "Totem and taboo" - 1913, "Lectures on introduction to psychoanalysis" - 1916 - 1917, "On the other side of the principle of pleasure" - 1920, "Psychology of the masses and analysis of I" - 1921, "On psychoanalysis" and others. Many scholars say that there have been few ideas in human history that would have

had such a powerful and wide-ranging impact on humanitarian culture. In particular: psychology, medicine, sociology, anthropology, literature and art.

One of Freud's most common and interesting ideas is the theory of misconduct. It is not by chance that he puts this phenomenon in the most fundamental work of the Lecture on Introduction to Psychoanalysis. For false actions, like no other phenomenon, indicate the presence of the subconscious. Sigmund Freud usually refers to erroneous actions as psychic phenomena: clauses, descriptions, readings, sensations when one uses another word instead of one word. The second group is related to forgetting or name, or intent, or keeping the object, etc. Freud believes that such erroneous actions are not accidental in nature, but rather determined by the mechanisms of the subconscious. He gives some examples, but among them the most common and understandable example of a saying. During the wedding of the children of Helmholtz (founder of modern psychophysiology) and the famous inventor and big businessman Siemens, the eminent physiologist Dubois-Raymond delivered a welcoming speech, which ended with the words: "Long live the new firm Siemens and Halske." It was not a new name but an old company name. And Dubois-Raymond wanted to exclaim, "Long live the new firm Siemens and Helmholtz." However, the speaker was so worried that he expressed his true opinion.

He did not believe that Siemens would share his firm with Helmholtz. And I thought that Halske would remain a partner. The intuition did not fail Dubois-Raymond - the name "Siemens and Halske" has remained almost to this day. As Freud notes, commenting on this case, the most common and at the same time the most surprising saying is when the speaker says the opposite of what he was going to say.

True fame came to Freud after his visit to the United States in 1909. The lectures delivered have earned international recognition and his treatment fees have finally become quite decent. In 1910, Freud and Jung hold the Second Psychoanalytic Congress in Nuremberg on the wave of popularity (The first was held in Salzburg in 1908). In the summer of 1930, Freud was awarded the Goethe Prize for his significant contribution to science and literature. Freud was very pleased and psychoanalysis was even more prevalent in Germany. However, it was not long to rejoice after the visit to the United States. The First World War brought an economic downturn, which affected the number of Freud's patients. And in 1923, Freud was diagnosed with oral disease due to the constant smoking of cigars. Over the following years, he survived 33 operations but did not give up cigars. In 1938, after Austria's annexation of Germany and the subsequent persecution of the Jews, after Freud's interrogation with the Gestapo, he decided to move to England. Things were not easy. Only the intervention of US President Franklin Roosevelt and the granddaughter of Napoleon, Princess Marie Bonaparte, allowed Freud to leave Vienna.

In 1939, although Freud continued to write and perform in London, his illness worsened. He reminded his doctor Max Schur of the promise he had once made to Freud - if necessary, to help him die. As a physiologist, he was well aware of the ultimate limits of a living organism. In addition, the pain became unbearable. Max Schur refused to keep his promise and turned to Anna Freud. She also broke out in protest. But despite

her father's suffering, she had to give up. Max Schur introduced Freud's overdose of morphine.

Death was not a forget for Freud. Vice versa. The psychoanalytic movement continues today. From the United States, Germany, France, Ukraine to Vietnam, psychoanalysis is studied and used, including Sigmund Freud's classic psychoanalysis. In most liberal arts universities, psychoanalysis is introduced into the program. What did Sigmund Freud do? Ancient Greeks spoke nosce te ipsum - know yourself. Humanity has not yet fulfilled this desire. Freud made another major step along the way. He outlined important coordinates and opened new horizons in directions that can be moved on. And so as not to say skeptics, as long as one looks into his soul and tries to understand himself, Sigmund Freud will remain alive.

Conclusions. Z.Freud's discovery of the topic of the mental world of man influenced the development of all humanities in the twentieth century. The realization that the inner world of man has a complex structure gave impetus to study the mechanisms of human psyche. The subconscious, the conscious, the self-conscious, the mechanisms of mental protection, the theory of sexuality and other phenomena of the mental world, described in detail by Z.Freud, created a completely new idea of the person than what existed before. Z.Freud's method of free association was adopted by psychiatrists around the world. Not everyone was able to achieve the result, as this technique remained partly a science and partly of an art. Z.Freud's teachings provided psychologists and psychiatrists with coordinates to look for ways to treat the patient. The cognitive science that used these coordinates was able to effectively continue the search for Z.Freud.

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HIGHER EDUCATION QUALITY ASSURANCE IN THE CONTEXT OF INTEGRATION INTO THE EHEA (ON THE EXAMPLE OF DEPARTMENTAL HEIS)

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Annotation. *The process of higher education quality assurance is a strategic priority for the development of higher education in Ukraine. To meet the EHEA standards in the sphere of higher education for the Ukrainian HEIS to cooperate with European ones the conceptual foundations of the reform of higher education, which are designed to provide quality educational services, are to be considered. Changes in external quality assurance are analysed: the creation and first results of the activities carried out by the National Agency for Quality Assurance in Higher Education. The role of the departmental universities in ensuring the internal quality of higher education, its monitoring and control is investigated.*

Key words: *higher education, external and internal quality assurance in higher education, departmental universities.*

Introduction. Higher education is the sphere with the help of which the professional life of a person is realized, he or she becomes a specialist and creates the foundation of the financial security for the future. The key task of the system of higher education is to become a good employable specialist. As it is stated in The “Standards and Recommendations for Quality Assurance in the European Higher Education Area”: “Higher education aims to fulfil multiple purposes; including preparing students for active citizenship, for their future careers (e.g. contributing to their employability), supporting their personal development, creating a broad advanced knowledge base and stimulating research and innovation” [12]. Ukrainian higher education is in the process of reforming in accordance with the requirements of the Bologna Process. The Bologna Process envisages the implementation of the main provisions of the Bologna Declaration for the integration of Ukraine's education system into the European Higher Education Area, which requires the implementation of European standards in the educational and scientific space, the development of common criteria and standards based on the quality of higher education.

The problem of the higher education quality is relevant due to the situation existing both inside and outside the education system. According to Ukrainian scientist V. Lugovyy, in Ukraine “higher education, in particular, is characterized by inefficient organization, dispersion, fragmentation, incompleteness, high expenditures, low institutional capacity and insufficient quality, and therefore require substantial optimization” [7, 68].

The need to review existing approaches to quality assurance in higher education is

linked to such factors as “the absence of the Ukrainian higher education institutions in the rankings of world-class universities, e.g. the top international Times and Shanghai rankings; low interest of young people from European and other countries in getting diploma in Ukrainian universities; bad reputation of the graduates of many higher education institutions of Ukraine due to the low level of professional training, etc. The gross approach in higher education during the 20 years of independence has led to a doubling of the country's GDP by a third of the universities, and the number of students has tripled” [6, 5-6]. As we can see, it is necessary to improve the quality of educational services, which is a priority for the development of modern competitive higher education in Ukraine.

Methods and materials. A considerable amount of research has been devoted to the study of theoretical and applied features of higher education quality assurance in Ukraine and in the European Higher Education Area.

While assessing the domestic development of higher education quality assurance, V. Lugovyy and Zh. Talanova note that “in Ukraine, a quality culture based on a balanced combination of minimum and high quality improvement standards with the tendency of the latter to dominate, is in the start point. But there is tendency to spread another standards based on the use of ratings and real accreditation educational programs and activities of educational institutions” [1, 26], taking into account and improving their excellence and development in the world practice.

Researchers draw their attention to the experience of reputable international non-governmental organizations: the European Quality Assurance Agency (EQAA) and the International Network for Quality Assurance in Higher Education (INQAAHE). Scientists consider it possible to introduce the principles and concepts developed by these organizations as a terminological minimum necessary to carry out researches in this field: “... INQAAHE, first, recognizes the theoretically and practically complex category of ‘quality in higher education’, seeks to theoretically and practically substantiate quality improvement and the quality assurance system facilitate the definition of appropriate standards of institutions [1, 27].

Describing the functioning of modern universities, S. Kalashnikova notes that they operate on the principles of openness and partnership as well as on a new model of higher education governance, which “includes – many levels and many actors (participants); rules, procedures and mechanisms for their interaction to achieve common goals” and “causes a change in the role of the state in the management of higher education (from regulator to facilitator) and delegation (redistribution) of the state powers among new actors (participants) in the governance process [3, 9]. Thus, researchers recognize the role of different stakeholders in the functioning of higher education.

The current tendencies of development influence the transformation of the higher education system of Ukraine, in particular, the specialized educational institutions, which is a complex non-linear process. The components of this process are: democratization, innovative processes in higher education: the emergence of new specialties, educational programs, technologies and teaching aids, the dissemination of modern methods of

management and marketing of higher education; globalization and Europeanization: transformation of Ukrainian education in the context of the globalization of modern education and the formation of a joint European Higher Education Area [17, 27].

However, such problem as the peculiarities of quality assurance of higher education in specialized higher education institutions is not widely represented in the academic discourse. Therefore, the purpose of the present paper is to analyse the quality assurance in specialized higher education institutions of Ukraine based on the relevant regulations.

Results. Quality management in educational is a mandatory component of the public education in Ukraine. Governance in the field of education has been identified as a priority of the state educational policy of Ukraine to ensure the constitutional right of the citizens to have equal access to the education. The main conceptual foundations of higher education reform, defined by the Law of Ukraine "On Higher Education", taking into account the requirements of the Bologna Process, European standards and approaches to the provision of quality educational services, etc. include following:

- autonomy to higher education institutions.
- licensing and accreditation.
- changing of the concept of public procurement in higher education.
- optimization of the structure and network of higher education institutions, their subordination and enlargement of universities.
- strengthening partnerships with employers and involving them in defining the content of higher education.
- improving the quality and competitiveness of higher education [5].

Therefore, the problem of the higher education quality is related to conceptual reforming of the sphere of education. 'Quality' is defined as the combination of features and characteristics of a product or service that determine its ability to meet the needs of the consumer. 'Quality of education' is an indicator of the correlation of goals and results, measures of achievement of the goal. 'The quality of educational services' is a social category to determine the status and effectiveness of the educational process [8, 74].

A comprehensive definition of the quality of higher education is found in the National Glossary of Higher Education: "Quality in Higher Education: a characteristic of higher education that reflects the relevance of learning outcomes, educational processes and institutional conditions to the actual development goals of the individual and society. Higher education quality is a key concept of the Bologna Process. The European Higher Education Area Qualifications Framework (2005), European Standards and Recommendations for Quality Assurance in Higher Education (2005) were developed to provide it, the European Association for Quality Assurance in Higher Education (2004) and the European Register for Quality Assurance in Higher Education were established (2008)" [10, 66].

There is a system of criteria for quality assurance and evaluation of higher education, the so-called "Standards and Guidelines for Quality Assurance in the European Higher Education Area", adopted in 2005. The Standards are used by quality assurance institutions and agencies as a major recommendation document for external and internal

quality assurance systems in higher education. The Standards are based on the vision of the quality of education as a result of interaction between key stakeholders of the educational process, namely: teachers, students and the educational environment of the institution [12]. Quality assurance should guarantee a learning environment in which program content; learning opportunities and resources are consistent with this goal [12].

The “Standards and Recommendations for Quality Assurance in the European Higher Education Area” form a system of criteria at the European level that specifies the performance of quality assurance agencies. Due to a well-established system of standards, it is possible not only for state actors but also for non-governmental organizations operating in the relevant field within the European Higher Education Area to apply these regulations. These standards also allow the public to participate in their implementation, because one of the principles of the "Standards and Recommendations for Quality Assurance in the European Higher Education Area" is to take into account the needs and expectations of all other stakeholders and society [12].

The Standards and Guidelines for Quality Assurance in the European Higher Education Area set out a list of European Standards for Quality Assurance in Higher Education, consisting of:

- “common framework for quality assurance systems for learning and teaching at European, national and institutional level; -
- the assurance and improvement of quality of higher education in the European higher education area;
- mutual trust, thus facilitating recognition and mobility within and across national borders;
- information on quality assurance in the EHE” [12].

Considering the peculiarities of implementation of the European quality assurance standards, it should be noted that the quality assurance of higher education is carried out at two levels: external and internal. The external agent for quality assurance in higher education is the National Agency for Quality Assurance in Higher Education (NAQAHE), and internal agents are the relevant structural units of higher education institutions. The 2019-2020 NAQAHE Strategy states that “higher education quality assurance is a requirement of the present, a key principle of the Bologna Declaration and an indisputable priority for the academic community and public education policy in Europe and other developed countries” [9].

In December 2018, in accordance with Resolution No. 224, April 15, 2015, the Statute of the National Agency for Quality Assurance for Higher Education was approved. In accordance with the Statute, NAQAHE is the body that provides external assessment of quality standards.

An internal agent for quality assurance in higher education is the relevant units of the institution of higher education. The institutional structure of the internal system of quality assurance in higher education is “a set of structural units (actors) that ensure the quality of educational activities and the quality of higher education institutions through the implementation of the functions assigned to them” [12]. The purpose of functioning

of the institutional structure of the internal security system is “to create and implement the conditions for qualitative training of highly qualified specialists of the appropriate level, competitive in the labour market, competent, responsible, capable to carry out effective professional activities” [12].

The internal quality assurance system in a higher education institution is composed of several entities: head government bodies, which are partly related to quality assurance in the institution, and special units, which have the exclusive competence of the quality assurance processes. This section is based on the requirements of the Law of Ukraine "On Education" 05.09.2017 (Section V Article 41), Law of Ukraine "On Higher Education" 01.07.2014 (Section V Article 16), Resolution of the Cabinet of Ministers of Ukraine 30.12.2015 No. 1187 “On Approval of Licensing Conditions for Educational Activities of Educational Institutions”, Decree of the Cabinet of Ministers of Ukraine, November 23, 2011 No. 1341 “On Approval of the National Qualifications Framework”, European Credit Transfer and Accumulation System. The provisions are based on the principles set out in the European Association for Higher Education Quality Assurance Standards and Recommendations for Quality Assurance in the European Higher Education Area, the International Standard for Quality Management Systems ISO 9001: 2015, and - Guidelines for the Institutional Structure of the Internal System quality assurance of educational activities and quality of higher education within the framework of the Erasmus + QUAERE project [4].

General management bodies involved in the internal structure of quality assurance of education include:

- Supervisory Board, the composition and functions of which are determined by the Law of Ukraine “On Higher Education”;
- Academic Council, the composition and functions of which are determined by the Law of Ukraine “On Higher Education”;
- Rector who is responsible for the activities carried out by the higher education institution and the internal quality assurance system.

Organization, management and control for implementation, monitoring and other operational issues in the field of quality assurance are dealt with by specially created structures and designated persons, which may include:

- the representative of the Rectorate responsible for quality (the responsibilities of the representative may be assigned, for example, to one of the pro-rectors (the first pro-rector).
- scientific and methodological council (quality council);
- special service (structural unit).

According to the guidelines at the faculty level, the entities responsible for quality assurance are the following: the director of the institute or the dean of the faculty is responsible for the implementation and monitoring of the quality assurance system and other mechanisms that allow to ensure and improve the quality of educational activities carried out by the institute (the faculty). Quality assurance institutes (faculties) are collegial bodies implementing the institute (faculty) policy in the field of quality assurance of educational activity and quality of higher education.

Higher education quality assurance committee at the institute (faculty) level may include a group of educational program quality examination, a group of diagnostics of the results of higher education applicants, a group of quality assurance of teaching staff, etc. The Education Program Quality Expertise Team is responsible for analysing the quality of educational programs, conducting quality monitoring, and organizing the process of periodically reviewing educational programs.

In addition the Erasmus+QUAERE Implementation Guidelines for the Establishment of the Institutional Structure of the Internal Quality Assurance System for Higher Education and Higher Education within the Erasmus + QUAERE project recommend for the employers (industry advisory committees) to be engaged in a range of activities on quality assurance [4]. The purpose of the employer council is to provide regular input from industry professionals and other external stakeholders into the program and courses as external stakeholders and potential employers [17].

The most important element in the organizational structure of internal quality assurance in higher education is the special unit - the Centre for Quality Assurance in Higher Education. This structural unit of a higher education institution reports to the Rectorate representatives who are in charge for quality assurance. The mission of the Higher Education Quality Assurance Centre is to realize the strategic goals of development of the Higher Education Establishment in order to improve the quality of higher education and educational activities, to ensure that the level of quality of educational services meets the requirements of stakeholders.

Functions of the Higher Education Quality Assurance Centre:

- formation of strategies, policies, procedures and practices for academic quality assurance;
- implementation of quality-related strategic developments within quality assurance procedures and their refinement in accordance with the strategy of higher education institution development;
- promoting the formation of an academic quality culture at the university;
- developing policies and procedures related to the development, monitoring, and periodic review of educational programs [4].

One of the main components of the internal quality assurance system is the involvement of higher education applicants in the management of this system. The decisive role in all processes related to the functioning of the internal quality assurance system belongs to the student self-government, whose activities affect the basic educational, financial and economic and other processes of the higher education institution. Participation of higher education applicants in the quality assurance process can be realized through participation in working groups on monitoring and review of educational programs. Students can have their representatives in the Council for Quality Assurance in Education and Higher Education at the university level [17]. At the institute (faculty) level, students can participate in work of the commission on quality assurance of higher education.

Having considered the existing approaches to the quality of higher education and

the structural and functional principles of quality assurance in higher education, we turn to the analysis of the activity of higher education institutions of a particular type in the field of quality standards.

Institutions of higher education of the Ministry of Internal Affairs of Ukraine are “state educational institutions which are subordinated to the Ministry of Internal Affairs, established and operate in accordance with the legislation of Ukraine, carry out in accordance with the licensed educational and professional training programs for specialists at certain educational and qualification levels”. Such higher education institutions provide education, training and vocational training in accordance with the regulatory requirements in the field of higher education in order to meet the educational needs of the individual, society and the state, as well as carry out scientific and scientific-technical activities.

The main purpose of the activities carried out by the higher education institutions of the Ministry of Internal Affairs is to provide the conditions necessary for obtaining a person of higher education, training specialists to work for the bodies and divisions of the Ministry of Internal Affairs, other executive bodies, enterprises, institutions and organizations of Ukraine [13].

Legal education is a key area of higher education. It has to do with the development of the rule of law, the implementation of law enforcement reforms identified by the Constitution and the President of Ukraine. The development of a network of higher education institutions of the Ministry of Internal Affairs of Ukraine as a component of the national education system is conditioned by the integration of the country into the European educational and scientific space.

The National Academy of Internal Affairs in the context of the implementation of the provisions of the new Law of Ukraine “On Higher Education” has declared its intention “despite the difficult socio-political and economic conditions to solve the task of protecting the public order, combating crime, strengthening the sovereignty and territorial integrity of the state, requiring constant personnel and professionalism” [13].

In accordance with the new Law of Ukraine “On Higher Education”, the specialized higher education institutions envisage a number of procedures and measures. Among them: annual assessment of higher education applicants through sections of knowledge; checking the level of teaching of the disciplines, especially by young teachers (monitoring the opinion of cadets, students and students); strengthening of requirements for quality of preparation of the academic works at all levels and prevention of academic plagiarism [5].

The problem of the police education is a long time necessary to provide reforming for the departmental institutions of higher education, which are subordinate to the Ministry of Internal Affairs, in particular regarding the implementation of quality assurance standards and their monitoring [13].

To investigate the activities in the field of quality assurance of higher education in the departmental universities at the level of the internal quality assurance system, we analysed the relevant Regulations on the system of internal quality assurance of education of Kharkiv National University of Internal Affairs [14], Lviv University of

Internal Affairs [16] and Dnipropetrovsk University of Internal Affairs [17].

Table 1

**Regulations on the system of internal quality assurance of education:
comparative analyses**

Comparison criteria	Kharkiv National University of Internal Affairs	Dnipropetrovsk University of Internal Affairs	Lviv University of Internal Affairs
Regulations on the system of internal quality assurance of education	Established on 18/11/2016	Established on 14/06/2016	Established on 29/08/2018
Units responsible for quality assurance	Rectorate; Academic Council of the University; Scientific and Methodological Council of the University; Academic Council of the Faculty; the dean of the faculty and his deputy; Head of Department; scientific and pedagogical staff.	Rector and Vice-Rectors; Academic Council of the University; The heads of the units and the deans of the faculties; Scientific and Methodological Council of the University; Academic Council of the Faculties;	Rector, Vice-Rectors and Collegiate Bodies: Academic Council of the University, the Supervisory Board of the University; External stakeholders; Each employee of the University within his/her competence
Description of the Powers for the bodies responsible for the internal quality assurance	The powers and forms of control and monitoring of quality assurance are fully detailed in the document.	The powers and forms of control and monitoring of quality assurance are partly detailed in the document.	The powers and forms of control and monitoring of quality assurance are partly detailed in the document.
External stakeholders of the quality assurance	Not mentioned	Not mentioned	Stakeholders are mentioned but their powers and forms of their influence are not mentioned
Cooperation with the European associations of specialized higher education institutions of the EU	Not mentioned	Not mentioned	Not mentioned

Source: compiled by authors according to [14], [15], [16]

Considering the internal systems of higher education quality assurance in the departmental universities, it can be stated that since 2016 they have provided more opportunities for the public control which is defined in the proper Regulations. One more important position is the detailed description of the curricular design, the requirements to its creation, monitoring and modernization etc.

The structure of the units who are in charge directly or indirectly for quality assurance is also specified by the proper Regulations but with the accordance to the hierarchy of the university authorities. No special units to insure, control and provide monitoring of quality assurance are organized but the existing units and administrative officials gain additional functions and duties in this sphere. The role and mechanism of how external stakeholders take part in constructing the curricular design is not specified. Any kind of industry advisory committees are not created according to the documents. The suggestions the Erasmus + QUAERE Implementation Guidelines for the Establishment of the Institutional Structure of the Internal Quality Assurance System for Higher Education and Higher Education within the Erasmus + QUAERE project are not taken into account so the Regulations are not balanced while specifying the role and functions of the external stakeholder who are in charge for quality assurance.

Conclusions. 1. The problem of higher education quality assurance is a priority for the modern educational policy of Ukraine. Management of quality assurance is the process of transferring the quality of education as an object of managerial influence into a state characterized by substantiated indicators of the quality of higher education. Internal self-assessment of the activities in quality assurance and independent external evaluation of the activities in this sphere is a mandatory requirement of the European Quality Assurance Association.

2. The quality of Ukraine's higher education is influenced by the objective factors: the level of preparation of the entrants, the qualification and competence of the teaching staff of universities, the conformity of educational programs, logistical and methodological support, etc. The current conditions of higher education development as well as the current tendency of its quantitative evolution require the implementation of training programs without reducing the quality of education by the limited resources. This is possible only through the introduction of new forms, methods and technologies that will more actively involve the administration of universities, scientists, teachers and students in the process of quality management education. The responsibility for higher education quality assurance is taken by the higher education institutions themselves.

3. Departmental higher education institutions have begun the process of introducing an internal system of higher education quality assurance. At this stage, relevant regulations have been worked out. They contain information on the structure and functional authority of the most but not all stakeholders in the quality assurance process, and the recommendations provided in the Guidelines for building the institutional structure of the internal quality assurance system and quality of education. education within the framework of the Erasmus + QUAERE project are not adapted while the Regulations were being formed.

4. In order to ensure European standards for the quality of higher education in specialized higher education institutions, we recommend to adapt the theoretical and methodological developments and case studies developed by the reputable European associations of specialized higher education institutions of the EU: European Union Agency for Law Enforcement Training and the Association of European Police Colleges.

In our opinion, the prospect of future is the study of the clear criteria and indicators of external and internal process of higher education quality assurance in high education institutions especially of departmental universities.

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CONSTRUCTION OF PARQUETS, MOSAICS AND PLANE TESSELLATIONS AND USING THEM IN THE COURSE OF GEOMETRY IN THE MIDDLE AND HIGH SCHOOL

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Annotation. *Practice confirms that understanding theoretical material while studying geometry substantially improves when sustained by concrete applied illustrations from the everyday life. As one of the most useful illustrations for studying polygons serve parquets, mosaics and plane tessellation.*

This paper presents basic theoretical data about plane tessellation, geometrical types of parquets and principles of their construction that can facilitate learning theme 'Polygons' in the course of geometry.

Key words: *polygon, parquet, mosaic, plane tessellation, netting, applied orientation of study, geometry, studying process.*

The conscious application of the acquired theoretical knowledge to solving practical problems has been and remains one of the pressing problems in the teaching of geometry students. Extensive opportunities for intellectual development, for the formation and development of logical thinking, spatial ideas and imagination, algorithmic culture, the ability to establish cause and effect relationships, to build mathematical models of the studied processes and phenomena, to substantiate the findings obtained by students and students of geometry [9, p.127].

Under the applied orientation of the geometry course we mean its meaningful and methodological connection with the practice, which involves the formation of subjects of the educational process [7] secondary and higher education skills necessary for solving practical problems by means of geometry.

Applied Geometry Learning focuses on the students' understanding of geometry as a method of knowing and transforming the surrounding world, which is not only a field of geometry applications but also an inexhaustible source of new geometric ideas. Learning to apply geometric knowledge to solving applied content problems that arise outside of geometry and solved by geometric methods contributes to strengthening the motivation of learning, systematic, efficiency, flexibility of the acquired knowledge, development of skills to apply the acquired knowledge, stimulate cognitive interest.

However, the essence, ways and means of realization of applied orientation of teaching geometry in higher education remain insufficiently developed in modern pedagogical and

professional science. The lack of tasks of applied character, tasks with practical content and practical tasks is indicated both in the course of training of professional disciplines, and in the course of industrial, pedagogical, scientific-pedagogical and research practices of students and undergraduates. However, the experience of recent years testifies to the considerable interest of the student audience in those scientific problems that are of applied importance, especially in the original tasks of interdisciplinary content, which is clearly manifested in their choice of research topics.

Analysis of recent research and publications. In the scientific and pedagogical literature there are different approaches both to the definition of the term "polygon" and to ways of organizing the implementation of the applied orientation of the study of polygons in the course of geometry. Consideration of these issues is devoted to the work of A.N. Kolmogorov, L.S. Atanasyan, A.D. Alexandrov, G. Bevz, V.G. Boltyansky, V.F. Kagan, O.V. Manturov, A.V. Pogorelov, P.M. Erdniev, I.M. Yaglom, Z.I. Slepkan, M.V. Protsovyt, V. Prasolov and others.

The purpose of the article is to define the role of teaching the theme "Polygons" in the course of geometry, to analyze the main features of the organization of the educational process to implement the applied orientation of teaching geometry of students and students on the example of studying and researching the properties of parquet, mosaic and plane displacement.

Presenting of the main material. The study of parquet floors, mosaics, and plane inclusions is useful for secondary school students as well as university students, as this topic is closely related to the theme "Polygons", geometric transformations, periodic functions and reflections, group theory, combinatorics, and combinatorics other sections of modern mathematics, and has a wide range of applications [1, p. 3]. It is suitable for the research work of students and students. It can be especially useful for those who are interested in design, architecture, decorative arts and other applied issues of geometry. Parquet is a kind of ornament, which was created by many generations of craftsmen. They decorate the floors and walls of the rooms. use different parquet motifs in clothing, accessories, home design, construction.

The unique physical properties of wood - the color, shine and texture given to it by Nature - have made it an immutable material for many thousands of years. These characteristics of wood are most fully disclosed, first of all, on parquet floors, especially if they are illuminated by a stream of sunlight. Due to the possibility of laying parquet flooring elements in different, mainly mutually perpendicular directions, which create a "game" of colors and shades that shine depending on the directions of the fibers of the wood relative to the light source and transparent decoration, the floors become highly artistic products. It is known that nut wood can have up to 40 shades.

Mathematical and geometric theories of polygons and parquets have their practical application, so their conscious assimilation will be useful for designers, architects, builders, people who are fond of folk art.



At the National Forestry University of Ukraine rational ways of mechanized processing of defective parquet laths and forming of them in combination with full laths of facial coverings have been developed, which ensure maximum yield of laths, aesthetic efficiency and quality of parquet boards. The solution of a complex of interrelated scientific and engineering issues of operational, topological, research, design, technical and technological character allowed to create parquet boards of ornamental compositions. When constructing ornamental compositions on the floors of parquet boards took into account:

- features of placement of facial strips that exhibit such physical properties of wood as color, gloss and texture;
- the width of the foot or the size of the steps of the observer when walking;
- the integrity of the idea of the drawing that would be perceived. To build ornamental compositions on the flooring of parquet boards, no matter what we are based on - the ancient multi-circuit combinatorial Durer ornament or modern Penrose mosaic, the rule of gold section - harmonic division in the extreme and middle widths of 34, was used 55 mm is a Fibonacci number. In this approach, the construction of ornaments on parquet floors is made of modular elements.

Three types of ornaments are used in the construction of ornamental compositions on modern parquet products:

- mesh ornaments that fill the entire surface of the floor with solid patterns;
- ornamental friezes, which only surround the floor;
- ornaments inscribed in circular rosettes contained in the center of the floor.

Friezes and rosettes are rarely used for floors in modern living spaces, so it is advisable to form solid patterns on parquet floorboards on square, triangular, rectangular, rhombic and parallelogram grids.

Not all of these figures are rational in terms of technical and technological execution, so there are 48 variants of their division into equal parts. As a result of this division, polygons are obtained from which to choose rational shapes and to fill them with facial coverings of parquet boards without gaps and gaps with certain figures in positions

obtained by rotating these figures around the axes or by reflecting them in symmetry planes. The sequence of construction of ornamental compositions involves the choice of a grid shape, which is applied to the parquet strips, composed in the form of figures with axes of symmetry 1, 2, 3, 4 and 6. On the parquet can be only 17 combinations of figures with such axes of symmetry. This means that the same figure, composed of parquet strips, is repeated on the plane 17 times by different elements of symmetry and all possible permutations.

In accordance with the above rules for the construction of plane ornaments, the National Forestry University of Ukraine (NLTU) created various modular variants of ornamental compositions for floors made of parquet boards and parquet tiles. These include parquet boards "Crystal", "Ornament", "Flower", "Steon", "Zigzag", "Track", "Pattern", parquet tile "Windmill", parquet tile with accessories "Painting" and others.

These Ukrainian industrial designs of modern parquet products are one of the attempts to restore the interrupted stylistic tendency of parquet floors of the past. Parquet (or mosaic) is an endless family of polygons that covers a plane without gaps and double coatings. The creation of parquet floors is closely related to the study and application of the properties of polygons, because there are different types of parquet, namely: right parquet floors are parquets consisting of regular polygons and around each vertex polygons are arranged in the same way (Fig. 1). There are only three types of flooring.

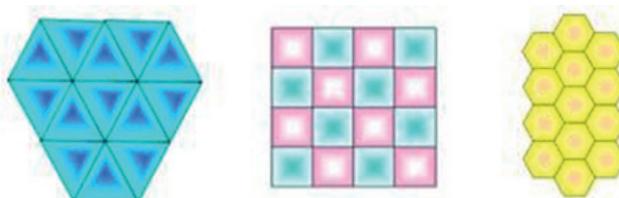


Fig. 1. Types of the right flooring

Semi-rectangular parquets are parquets consisting of regular polygons with different numbers of sides equally spaced around each vertex. There are only eight types of semi-regular parquets (Fig. 2).

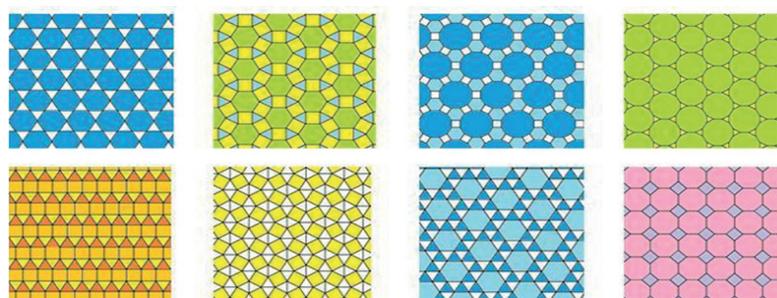


Fig. 2. Types of semi-regular parquets

Parquet floors are not limited to regular polygons. It is possible to create parquets from curvilinear figures, or from irregular polygons (Fig. 3).



Fig. 3. a) parquet of curvilinear figures) parquet of irregular polygons

Search and classification of parquet pentagons is one of the urgent problems in modern combinatorial geometry. The first classification of pentagons was given in 1918 by the mathematician Carl Reinhardt in his dissertation *On the Plane Division into Polygons*, presented at the University of Frankfurt. He described five types of pentagons, nine more - invented scientists from 1968 to 1985. 30 years later, in 2015, American scientists discovered the 15th type of pentagon [3].

As a result of practical work of VS Dolgushev new sixteenth (fig. 4), seventeenth (fig. 5) [4] and eighteenth (fig. 6) [5] types of pentagons can be found, which can be embedded in a plane without gaps and overlays.

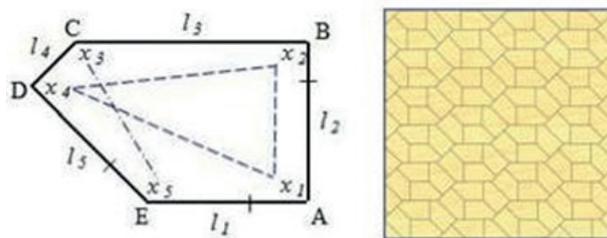


Fig. 4

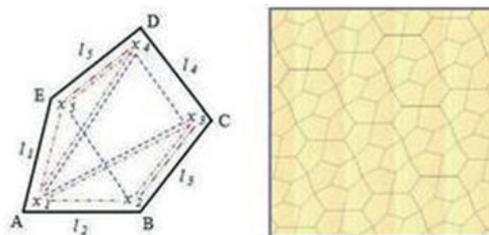


Fig. 5

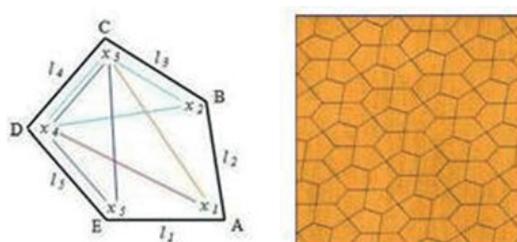


Fig. 6

Finding and discovering new types of parquet polygons that can be used to conceal a plane without gaps and overlays are extremely relevant from both a theoretical and practical point of view. Some parquet definitions are not limited to polygons; in this case the parquet is called a covering of a plane without gaps and overlappings by the given figures (in a separate case - polygons, right or wrong, convex or convex).

When studying the parquet it is advisable to consider the displacement of the plane, the grid, their types, deformations, defining areas of the grid and their application, curly stripes. Overlay is the covering of the whole plane by figures that do not overlap. Displaced is called each grid, though one of its vertices is the interior point of its edge. If no vertex of the grid is an interior point of some of its edges, it is called unbiased [1, p. 8].

The curved strip is a part of a plane bounded by two periodic lines that are parallel and do not intersect. The lines that limit the curly strip are its boundaries. If they are infinite polynomials, then we will also call this figured strip also a polygonal band. Ordinary and broken lines are separate types of curly stripes.

Two curly bands are called equal if one of them can be mapped to the other. The boundaries of smooth curly stripes are equal, so one of them can always be applied to the other so that these boundaries are aligned. So any flat stripes can be ground. And if by some equal figures it is possible to blot some curly stripe, then they can be blurred and the whole plane. Knowledge of this simple fact makes it much easier to solve many problems [1, p. 10].

Conclusions. For a more emotional and vivid perception of parquet flooring, it is advisable to consider the different colored parquet floors, story mosaics, to trace the connection between the parquet flooring and the ornaments that we described in our previous works [8–13]. On this basis, it is clear that much remains to be done at this stage to implement the applied geometry learning focus.

It is extremely useful to look at different ways to create parquet floors using geometric transformations and computer programs, which opens up opportunities for personal creativity and for creating new mosaics. One of the types of research work of students of higher educational institutions can be individual or group implementation of research projects for the development and improvement of software tools designed to create, analyze the properties and implementation of various types of geometric flooring and plane inclusions. This may be the subject of study of coursework and qualifications,

both theoretical and applied.

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THE PROBLEM OF UNIVERSITY STUDENTS TOLERANCE MANIFESTATION

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Annotation. *The article focuses on the problem of university students tolerance psychology as one of the most urgent. The university students, however, must be aware of the necessity of social relations development, based on such qualities as justice, refusal of making violence and causing harm to other people. Only these approaches may lead to the global public space consolidation and incorporation. Therefore, the tolerance development is to be accomplished not only in the secondary schools, but in the higher education institutions as well. The given article aims at all-embracing analysis of the problem of tolerance manifestation in the student environment, and thorough investigation of the main psychological-pedagogical and training means of its development.*

Key words: *tolerance, empathy, personal responsibility, students, psychological-pedagogical means, training means.*

Nowadays lots of people face such phenomena as criminality, terrorism, military conflicts, careless attitude towards the environment, etc. It is vitally important for education institutions, municipal authorities, NGOs, and charity funds to promote the information about psychological culture, eco-psychological interaction with entourage, and the ways to avoid aggression and violence. The urgency to power up this sphere of activity, particularly in higher education institutions, is of the first priority at the moment. The university students in particular have to realize the comprehensive requirement of social relations development on the basis of such virtues as tolerance, solidarity, refusal to make violence and cause harm to surroundings as well as to learn how to solve all the conflicts by means of constructive dialogues and negotiations. Only these approaches might consolidate and integrate global public space.

The reference to the civilized world countries' vector of development opens up the further urgent necessity to bring up personalities, oriented on personal responsibility, empathy, independence, freedom, own ideas and judgments, perceiving the diverse view points and life principles of other people likewise the deep internationalization of different culture values. This reference is the key rule of prospective teachers, which

will be working at the New Ukrainian School. To be more specific, they will possess the whole spectrum of competences, among those are ability to learn, to master their own knowledge, and to produce an effective communication strategy; skills to work in team, revolve, follow ethical standards, appreciate the diversity and multiculturalism, make critical thinking on fundamental world-view theories and principles of education and professional activity. The teachers must also manage the innovative technologies in their work to prevent aggression among junior schoolchildren and teenagers.

Analysis of the latest research papers and publications. The problem of the university students tolerance manifestations has been thoroughly described in many disquisitions in recent years. V. Pavlenko and M. Melnychuk, in particular, present the system-leveled approach, interpreting the tolerance as acceptance (tolerance on the social psychological level), lenience (tolerance on the individual psychological level), and persistence (tolerance on the psycho-physiological level) (Pavlenko, Melnychuk, 2014).

V. Bondar claims that tolerance provides the possibility of human personality acceptance, comprehension, and honest communication. The researcher states that tolerance is based on respect to personality, patient attitude towards different manifestations, points of view, even mistakes and faults, i.e. the attitude to other people, excepting blame, but containing compassion, empathy, understanding the value of human personality, and willingness to help (Bondar, 2015).

M. Dzhanelilova defines tolerance as an active moral position and psychological readiness to patience in the name of positive interaction between ethnos, social groups, people of other cultures, nationalities, religious and social backgrounds (Dzhanelilova, 2017).

O. Shayuk determines tolerance as the distinct ontophenomenological substance, the form of human existence, special psycho-spiritual state of a person, world-view universal and powerful theoretical construct of the modern philosophical-scientific discourse, also to be fixed means of constructive co-living of people, groups, ethnos, nations (Shayuk, 2017).

Introducing the problem. Regardless to many philosophical, psychological-pedagogical researches on the problem of tolerance, the peculiarities of tolerant environment forming in the higher education institutions still remain unsettled.

Aim and targets. The aim of the article is to present all-round study of the problem of tolerance manifestation in the student environment and to ascertain the most important psychological-pedagogical and training means of its development. Properly speaking, the main goals to achieve are: 1) to disclose the problem of tolerance of present-day youth; 2) to show up the results of the disquisition of tolerance manifestation indices amid students of physical and mathematical faculty of the pedagogical university; 3) to justify psychological-pedagogical training means of university students tolerance development.

Methods of research. Above all, the effective solution of the latest targets is founded upon the complex of investigation methods. Theoretical ones integrate theoretical analysis, generalization, and classification. Empirical methods embody testing,

diagnostics methods, and questioning. Statistic methods were also used in succession. It should be noted the methodical toolkit of the given research is based on key indices of the tolerance – personal experience, empathy, and constructive interaction with entourage and surroundings. Undergraduate students of Physics and Mathematics department of Poltava V. G. Korolenko National Pedagogical University (307 of them took part in the disquisition) answered, in particular, the questionnaire “Personal responsibility” (by S. Yalanska) to set up principal features of the responsible personality. It was logically qualified that the problem of students’ empathy manifestation level requires the technique of diagnosing the empathy level (by V. Boiko). Finally, the most efficient means to ascertain peculiarities of the future teachers’ interaction with entourage and surroundings as well as to describe personal responsibility manifestations based on the survey “Can you be considered a tolerant person” (by Ye. Kailiuk).

Corollaries of the given research obviously need further systematization via simple classifying by a certain characteristic feature. It has an x identification, while each separate value of the feature shows up $x_1, x_2, x_3, \dots, x_k$ marking; the number of values is revealed as k -marker. It is logically determined absolute numbers, which signify how many times every x feature value may be come across, make $f_1, f_2, f_3, \dots, f_k$ parameters. Finally, fraction of the feature value $\omega_1, \omega_2, \omega_3, \dots, \omega_k$ in the total number of testing turned to be the relative frequency, calculated by $\omega=f/n$ (n is a number of testing) formula and represented in percentages.

As a matter of fact, mathematical calculations make a foundation on frequency grouping (m) correlatively to the number of values of a certain group. Therefore, an average arithmetic mean (\bar{x}) comes out a fraction of feature values sum divided by the number of testing in the calculation formula $\bar{x}=(x_1+x_2+x_3+\dots+x_n)/n=(1/n)*\sum x_i$, integrating x_n – the feature value and n – the number of testing (measures).

Results. The exposition of the research main material.

Due to its contents, the tolerance of the person provides for benevolent and bearable attitude to the entourage and surrounding events, which neither violate human rights nor make any harm to the environment. In addition, the structure of personal tolerance embraces such core structural constituents: cognitive (knowledge of objects and life situations, based on personal experience acquisition); emotional (emotional states, which precede the behavioral constituent formation, thus, promote systematization of knowledge and appearance of certain behavior); behavioral (leading to basic fixed sets, value orientations, and ethnic values actualization. Such orientation, as to tolerance, can be explored in different deeds and actions of a person, whereas deed is the only one structure to correspond real entire self-fulfillment manifestations of man as a person, individual, citizen).

It is necessary to emphasize that personal responsibility, empathy, constructive interaction with entourage and environment are among the fundamental indices of tolerance. Moreover, the study has examined recognition of viewpoints diversity, life principles and values of other people as well as latitude towards entourage and surroundings combined with non-violence of human rights and environment harm

refusal, eagerness to help other people considered to be the criteria of the tolerance.

Students of Physics and Mathematics department of Poltava V. G. Korolenko National Pedagogical University (307 in number) were active participants of stating investigation, aimed to study some data. The survey “Personal responsibility” (author is S. Yalanska), in particular, made possible the further understanding of the personal responsibility problem. The data are presented in such a consecution (see Figure 1).

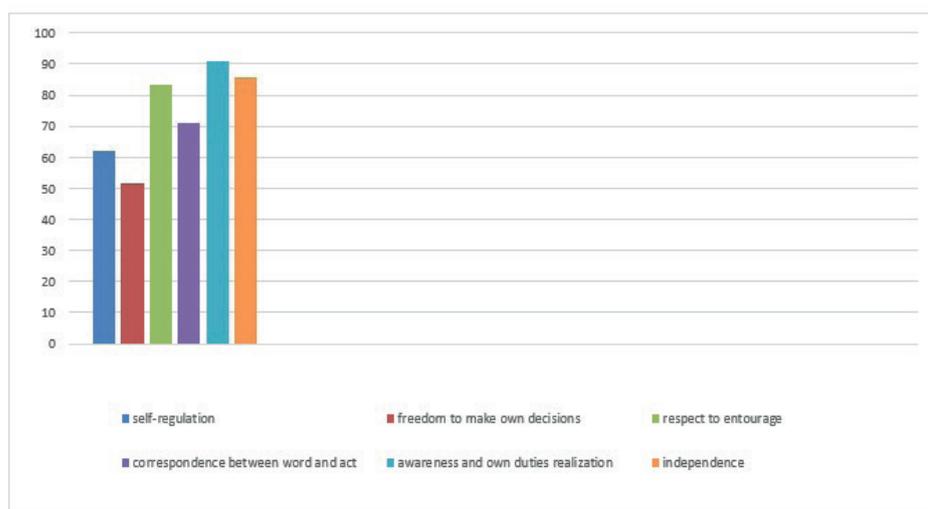


Fig. 1. Results of the survey “Personal responsibility” (systematized by S. P. Yalanska) of Physics and Mathematics department students of Poltava V. G. Korolenko National Pedagogical University.

It is clear about Figure 1 that respondents pointed out various aspects (ω_1 - ω_6 , %), $k=6$, amid them are self-regulation (62,0 %), freedom of decision-making (51,6 %), respect to entourage (83,3 %), correspondence between word and deed (71,0%), awareness and fulfillment of own responsibilities (91,0%), and independence (85,8%).

The latest was confirmed on the basis of the survey “Can you be considered a tolerant person” by Ye. Kailiuk (see Figure 2).

Part of respondents (x) got from 0 to 4 points (m), representing their pertinacity, obstinacy. Such people constantly try to impose his opinion on others in any way. Often he raises his voice. Thus, it is quite complicated to maintain durable relations with such people. 56,7 % of students (x) have got from 6 to 12 points (m). They are able to firmly stand for their ideas, lead a constructive dialogue, change their opinion if objective reasons are present. They may be able to express excessive harshness, disrespect towards the collocutor. 18% of students (x) of Physics and Mathematics department have got from 14 to 18 points (m). Such personalities can accept any idea, treat a seemingly paradoxical act with understanding even if they disapprove it. They are reasonably critical of their own thought and are able to renounce their views that proved to be

erroneous while preserving respect and tactfulness towards the collocutor.

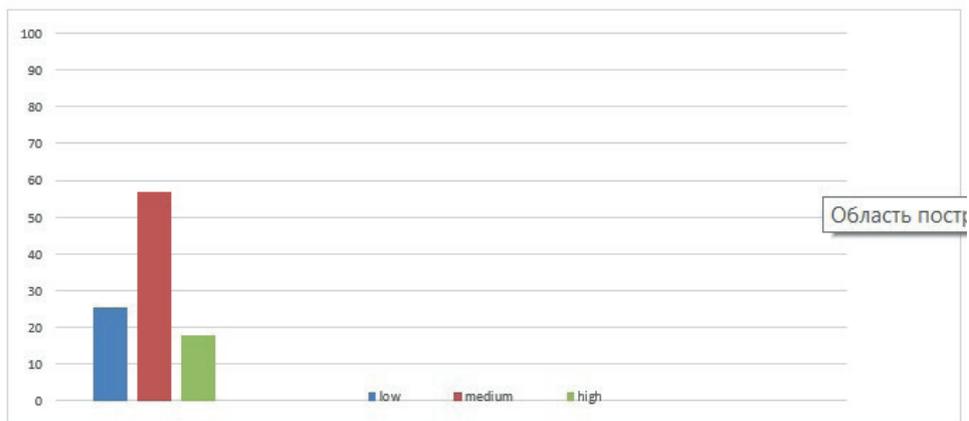


Fig. 2. Results of the investigation, based on the methods “Are you considered to be tolerant person?” (systematized by Ye. Kailiuk).

According to the used technique of diagnosing the level of empathic abilities (by V. Boiko) the following data have been obtained (see Figure 3).



Fig. 3. Results of the survey based on diagnosing the level of empathic abilities (systematized by V. Boiko).

Indices of separate scales and the general total evaluation of the empathy level have been analyzed. According to the technique, there were six tendencies (scales) distinguished in the structure of empathy: rational, emotional, intuitive channels of empathy, sets contributing to empathy, penetrative ability, and identification. The scale evaluations played additional role in interpreting the empathy level. The total index may theoretically vary between 0 and 36 points.

10,2% of respondents have got 30 points and more – a very high level of empathy (m); 53,3% of students have 29-22 points showing a medium level of empathy (m); 28,9% of students have got from 21 to 15 points – a reduced level of empathy (m); 7,6% have less than 14 points – a very low level of empathic abilities (m).

Within the framework of the International scientific project supported by US Peace Corps in Ukraine “Leadership. Tolerance. Volunteerism” (2015–2016) a program of the university students tolerance development has been initiated. The aim of the program is to develop the determined indicators of maturity and growth of tolerance of the student (high school) youth. The goals of the program are to foster tolerance, personal responsibility, empathy, constructive interaction with other people and the environment. The program involves creating a special educational environment with the following characteristics: a) the cognitive set of tolerance (personal responsibility); b) the emotional set (empathy); c) formation and development of the behavioral component on the basis of the constructive interaction with other people and the environment. An important element of the effective program implementation is the integration of psychological, pedagogical, and training means in the educational process of the comprehensive secondary and higher education institutions.

Module 1. “Formation and development of positive, eco-psychological thinking, internalizing of universal values and understanding other cultures”. It contributes to the development of indicators of the cognitive component of tolerance, forms desire for self-improvement, motivates to creative self-realization, ensures the development of positive thinking, organization of the educational process allowing deep perception and understanding of universal values”. Module 2. “Formation and development of psychological resilience, self-regulation” is aimed at the development of indicators of the emotional component of the personal tolerance. Its content includes motivation for benevolent and tolerant attitudes towards other people, encourages avoiding aggression and jealousy. It is essential to use all the elements of the module incorporating psychological and educational means”. Module 3. “Acquiring the experience of the constructive dialogue, friendly and tolerant attitude to the events in order not to violate human rights” is aimed at the development of indicators of the behavioral component of the personal tolerance. Its content encourages making positive actions, creating mutual understanding, ensuring permanent constructive feedback” (Kapustian, Yalanska, Nikolashina, 2016).

It is advisable to include the program modules to lessons with students (pupils), meetings of psychology clubs, the courses “Basics of Inclusive Education”, “Psychology”, “Psychology of Higher Education”, “Developmental and Educational Psychology”, “Developmental Psychology” та ін.

Discussion. The comparative analysis of the received data and the results obtained by the other scholars shows that according to V. Pavlenko and M. Melnichuk (Ukraine) the social psychological level (value orientations) plays the leading role in the tolerance determination. The individual psychological levels (divergent thinking, empathy) are of less importance. The psycho-physiological level has the least importance (Pavlenko,

Melnichuk, 2014). The conclusions made by N. Levus (Ukraine). The comparative analysis of personalities with different tolerance levels enabled us to locate differences in their personal dimension structure. Ethnically tolerant tested subjects are confident, emotionally stable, tolerant to ambiguity; they have wide and various interests, they show interest in moral, ethic, and worldview issues. Ethnically intolerant personalities are aggressive, egotistical, and domination-minded. The author considers it to be of utmost importance to prevent manifestations of intolerance during the student period and to form the tolerance culture (Levus, 2013). Having based her opinion on the theoretical studies of changes in the state legal system (Uzbekistan), M. Dzhanelilova stresses the high level of the tolerance culture of her state, the young generation's expression of tolerance having a leading role in this phenomenon (Dzhanelilova, 2016).

Conclusions. According to the results of the theoretical analysis of the problem, the summative study done, in particular, among undergraduate students of the Physics and Mathematics department of Poltava V. G. Korolenko National Pedagogical University (307 students took part in the study) the following conclusions can be made: 1) the study has highlighted issues of tolerance among modern youth; 2) the results of the study of tolerance indicators among the students of the Physics and Mathematics department of the pedagogical university are as follows: according to the Personal Responsibility survey (by S. Yalanska) the respondents have determined the following aspects: self-regulation (62,0%); freedom of decision-making (51,6%); respect to others (83,3%); matching words with actions (71,0%); comprehension and fulfillment of obligations (91,0%); independence (85,8%). The results of the study based on the method "Can you be considered a tolerant person?" (the author is Y. Kailiuk) show that 25,3 % of respondents scored between 0 and 4 points showing non-compliance, obstinacy of the personality. The person constantly tries to impose their will on others by any means available. Such people often raise their voice. Consequently, it is hard to keep lasting relationship with people possessing different opinions. 56,7 % of students got from 6 to 12 points. Such personalities are able to defend their point of view firmly, lead a constructive dialogue, change their opinion if objective reasons are available. They may show excessive harshness, disrespect for the interlocutor. 18% of students of the Physics and Mathematics department have got from 14 to 18 points. Such personalities can accept any idea, comprehend a seemingly paradoxical act even if they do not approve of it. The results of the method of diagnostics of empathic abilities (by V. Boiko): 10,2% respondents got 30 points or more – a very high level of empathy; 53,3% of students have 29-22 points showing medium level empathy; 28,9% of students got from 21 to 15 points – the reduced level; 7,6% have less than 14 points showing a very low level of empathy; 3) it has been proved that psychological and pedagogical, art-therapeutic, training means of the developed program can contribute to the effective formation of tolerance of the participants of the educational process, the dissemination of ideas of personal responsibility, empathy, independence, freedom, personal opinions, and recognition of the diversity of opinions and life principles; readiness for consolidation of the Ukrainians in the European area and the world.

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MEDICINE AND PHISIOLOGY

THE IMPACT OF ANTISEPTICS ON THE MICROFLORA OF PYOGENIC LIVER ABSCESES

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Annotation. *The article presents the results of a comparative assessment of the action of chlorhexidine bigluconate, decamethoxin, hydroxymethylquinoxalidoxide, benzyldimethyl [3- (myristoylamino) propyl] ammonium chloride monohydrate and povidone iodine on the microflora of liver abscesses in-vitro. The highest sensitivity was detected to dioxidine ($p < 0.05$). Decasan was in the second place by the influence of in-vitro. The least sensitive strains were found to Miramistin, which caused a delay in the growth zone of 2 and 3 mm in two cases of S.aureus exposure.*

Key words: *pyogenic abscesses, microflora, antiseptics, local treatment.*

Introduction. It is known that more than 50% of human diseases are caused by live pathogens - bacteria, rickettsia, spirochetes, protozoa, chlamydia, viruses, etc. [1]. To combat them, numerous medicinal substances are used, which can interfere with the reproduction of the pathogen (bacteriostatic type of action) or cause its death (bactericidal type of action). Often the same substance in different concentrations can have different effects: in low concentrations - bacteriostatic, in high concentrations - bactericidal. The first scientific attempts to use various agents with antiseptic properties (bleach, heavy metal salts, ethyl alcohol) were made in the first half of the 19th century to combat purulent complications [2].

The problem of finding an effective antiseptic on the microflora of pyogenic abscesses of the liver is relevant to our time, since this pathology is potentially dangerous to human life [3]. Pyogenic liver abscess (PLA) are associated with high morbidity and mortality [1]. Recently, in the etiology of PLA, the predominance of intra-abdominal infection and trauma has been replaced by the dominance of pathology of the biliary tract. However, up to 55% of patients with PLA do not have a clear etiological factor and are called cryptogenic [10].

The most frequent causes of their occurrence are purulent-inflammatory diseases of the abdominal organs, postoperative complications, suppuration of cysts and hematomas, and liver tumors [4]. The frequency of this pathology in the general surgical hospital is 0.5% with a tendency to increase [5]. Today, the treatment of patients with pyogenic abscesses of the liver requires an integrated approach, which includes surgical techniques and conservative therapy [6,9]. An important role in treatment is assigned to the effect on the etiological factor, which is carried out by rational antibiotic therapy and local treatment [5, 7]. However, standard therapeutic protocols for the treatment of purulent liver abscess have not yet been developed [12]. A significant increase in the number of multiresistant strains of microorganisms that cause purulent surgical infection forces to develop new approaches to their treatment.

In the modern literature there is insufficient data on the effectiveness of the use of antiseptics in the local treatment of liver abscesses, which necessitates research in this direction.

The purpose of the study: a comparative assessment of the effects of chlorhexidine, decasan, dioxide, miramistin and betadine on the microflora of pyogenic liver abscesses in vitro.

Materials and methods. In the surgical clinic of the Dnipropetrovsk Regional Clinical Hospital. I.I. Mechnikov in the period from 2016 to 2018 was under treatment 87 patients with pyogenic liver abscesses. In 21 patients, inoculum from the cavity of the liver abscesses and the effectiveness of antiseptics on the isolated pathogens were studied in laboratory conditions. In the study group of patients, there were 12 men (57.1%) and 9 women (42.9%). The age of patients ranged from 28 to 88 years. Liver abscesses in which it was not possible to diagnose the etiological cause, we regarded as primary (cryptogenic) and were detected in 17 (80.9%) patients, secondary - in 4 (19.1%). The causes of secondary abscesses were liver trauma in 2 (9.5%) cases, suppuration of a simple cyst - B2 (9.5%). Single liver abscesses were found in 17 patients, multiple - in 4 cases.

Investigated crops from the cavity of pyogenic abscesses of the liver of 21 patients who were treated at the surgical clinic of the Dnepropetrovsk Regional Clinical Hospital named after I.I. Mechnikov in the period from 2016 to 2018. There were 12 men (57.1%), women 9 (42.9%). The age of patients ranged from 28 to 88 years. Liver abscesses, in which it was not possible to identify the cause, were regarded as primary and were detected in 17 (80.9%) patients, secondary - in 4 (19.1%). The causes of secondary abscesses were trauma in 2 (9.5%) cases, suppuration of a simple cyst in 2 (9.5%).

The main method of surgical treatment of PLA was echocontrolled percutaneous transhepatic drainage of abscess cavity according to Seldinger by “pig tale” type drains Fr10 size. The intake of the contents from the abscess cavity was carried out into a sterile tube immediately after drainage according to the current order of the USSR Ministry of Health on April 4, 1985, No. 535 for aerobic organisms. The material was transferred to a laboratory for microbiological studies aimed at identification of microorganisms with the determination of their sensitivity to antiseptics: chlorhexidine digluconate

(chlorhexidine), decamethoxin (deccasan), gidroksimetilhinoksalidooksidu (dioxidine), benzyldimethyl [3- (miristoilamino) propyl] ammonium chloride monohydrate (miramistin) and povidone – iodine (betadine).

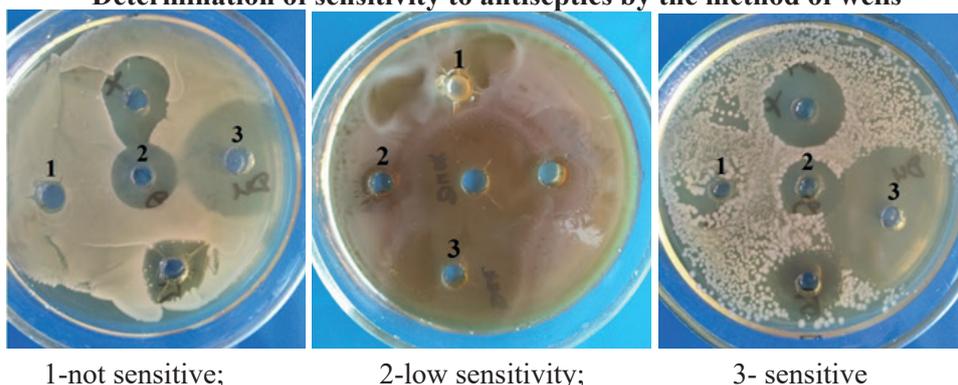
Chlorhexidine bigluconate was used as a 0.2% aqueous solution. The active ingredient of the Decasan antiseptic is decamethoxin, the content of which in 1 ml of the drug is 0.2 mg. Dioxidine was used in the form of a solution, 1 ml of which contained dioxidine 10 mg, calculated on 100% substance. Miramistin in the form of an aqueous solution with a concentration of the drug in 1 ml of 0.1 mg solution. The antiseptic agent Betadin is represented by a 10% aqueous solution of the active substance povidone iodine, which is a complex of iodine and polyvinylpyrrolidone polymer.

Identification and identification of pathogens was performed by the bacteriological method. In the cultivation of bacteria, nutrient mediums of Chistovich, Saburo, Endo, 5% blood agar, 1% sugar broth were used, and the Gram method was painted on the preparations. The determination of the activity of antiseptics was carried out by the method of "wells" according to the methodical recommendations on the experimental (preclinical) study of drugs [8] for the local treatment of purulent processes. As a solid nutrient medium, Muller-Hinton agar was used, in which wells were made with a diameter of 8 mm, in which test preparations were placed (0.01 ml).

As an experimental test culture, the main clinical strains of microorganisms were used in standard suspension (109) isolated from patients. For control, 0.9% solution sodium chloride was used. After seeding, Petri dishes were incubated for 24–48 hours at a temperature of 37 ° C. After that, an assessment was carried out, the criterion of which was the zone of growth inhibition of microflora: up to 10 mm or its absence - microorganisms are not sensitive to the drug; 11-15 mm - had low sensitivity and more than 15 mm sensitive strains. (Pic 1)

Pic. 1

Determination of sensitivity to antiseptics by the method of wells



At the same time, in cases of delaying the growth zone of microorganisms up to 10 mm, it was actually possible to speak of a bacteriostatic effect, more than 10 mm - a bactericidal effect of the drug.

Statistical data processing was performed using the EXCEL 2007 and Statistica 6.0 software packages.

Results and its discussion. In 10 (47.6%) patients, the isolated microorganisms were represented by monocultures, in 4 (19.0%) - by strain strains associations were isolated from the abscess cavity. Seeding did not increase in 7 (33.3%) patients. Gram-negative flora (G-) was detected in 14 (77.7%) cases, gram-positive (G+) in 3 (16.7%), fungi 1 (5.6%) case.

Among monocultures, *Klebsiella* (K) pneumoniae was found in 6 cases (60%), *Staphylococcus* (S) aureus - in 1 (10%), *Escherichia* (E) coli - in 1 (10%), *Pseudomonas* (P) aeruginosa - in 1 (10%), *Enterobacter* (E) aerogenes - in 1 (4.8%). The following combinations of microorganisms were obtained among the associations: E. coli + S.aureus - 1 case (25%), K.pneumoniae + *Proteus* (P) vulgaris - 1 (25%), K.pneumoniae + S.aureus - 1 (25%), K.pneumoniae + *Candida* (C) albicans - 1 (25%). It should be noted that K.pneumoniae prevailed in the obtained crops in 9 (50%) cases, S.aureus - in 3 (16.7%), E.coli - in 2 (11.1%).

When analyzing the sensitivity of the monocultures (14 samples), microbial associations (4 samples) to the antiseptics studied, the following results were obtained (Table 1, Pic. 2).

When using chlorhexidine, a bacteriostatic effect was observed in 8 (44.4%) cases, a bactericidal effect in 10 (55.6%) cases. Decasan caused a bacteriostatic effect in 3 (16.7%) cases, bactericidal - in 15 (83.3%). The bacteriostatic effect of dioxidine was obtained in 2 (11.1%) cases which confirms modern literature data on the microbiological landscape of PAP [11], bactericidal - in 16 (88.9%).

Miramistin caused only a weak bacteriostatic effect in 18 (100%) cases. Betadine had a bacteriostatic effect in 6 (33.3%) cases, in 12 (66.7%) - bactericidal.

Thus, the more pronounced bactericidal activity of decasan and dioxidine compared with other studied antiseptics should be noted. However, all the studied antiseptics had only a bacteriostatic effect on *C. albicans*, which, due to the small number of cases, requires further study.

The average diameter of the zone of growth inhibition of the microorganisms obtained in the studied sample was 11.89 ± 1.65 mm for chlorhexidine, 15.61 ± 1.81 mm for decasan, 26.67 ± 2.32 mm for dioxidine, and for miramistin 0.28 ± 0.20 mm, for betadine - 12.33 ± 1.48 mm.

A comparative analysis showed that the highest sensitivity of the identified microorganisms, not taking into account *P.Aeruginosa*, was to dioxidine than other antiseptics ($p < 0.05$). Decasan ranked second by in vitro effects. The least sensitivity was revealed to miramistin, which caused a delay in the growth zone of 2 and 3 mm in two cases of S.aureus isolation- only 11.1% of cases. As can be seen from the diagram, dioxidine and decasan showed the greatest antimicrobial activity.

Table 1

The sensitivity of the isolated pathogens to in-vitro antiseptics in different samples of pathological material

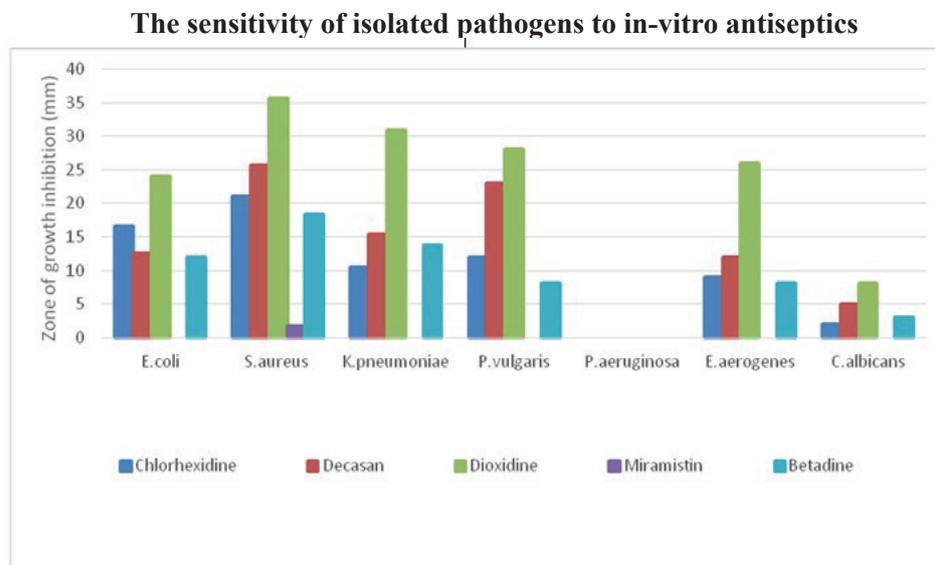
№	Pathogen	Diameter of the zone of stunted growth (mm)				
		Chlorhexidine (chlorhexidine digluconate)	Decasan (decanol toxin)	Dioxidine (hydroxymethylquinoline dioxides)	Miramistin (benzyltrimethylammonium propyl ammonium chloride monohydrate)	Betadine (povidone-iodine)
1	E. coli	18	12	22	0	12
2	S.aureus	22	24	35	0	16
3	K.pneumoniae	6	18	32	0	7
4	P.vulgaris	12	23	28	0	8
5	K.pneumoniae	8	12	27	0	11
6	S.aureus	23	27	36	2	20
7	E. coli	15	13	26	0	12
8	K.pneumoniae	18	8	36	0	22
9	K.pneumoniae	4	16	30	0	20
10	K.pneumoniae	8	18	32	0	17
11	K.pneumoniae	14	10	26	0	14
12	K.pneumoniae	6	14	29	0	8
13	K.pneumoniae	15	19	30	0	10
14	S.aureus	18	26	36	3	19
15	P. aeruginosa	0	0	0	0	0
16	E.aerogenes	9	12	26	0	8
17	K.pneumoniae	16	24	36	0	15
18	C.albicans	2	5	8	0	3

Moreover, when exposed to *K. pneumoniae*, which prevailed in the microbial landscape of PLA, under laboratory conditions, the antimicrobial activity of dioxidine and decasan statistically significantly exceeds the activity of other studied antiseptics ($p < 0.05$).

An exception was *P. aeruginosa*, which was insensitive to all the studied antiseptics, however, due to the small number of observations, the effectiveness of the use and the investigated antiseptics for this pathogen requires further study.

When analyzing the effect of antiseptics on the sown pathogens, no statistically significant difference in efficacy was obtained in the G + and G-flora ($p > 0.05$).

Pic.2



Findings. Dioxidine and decasan were the most effective against of the studied pathogens, with the exception of polyresistant *Pseudomonas aeruginosa*, which allows us to recommend their use as an epic treatment for the local treatment of patients with pyogenic liver abscesses.

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MICROBIOLOGICAL ASSESSMENT OF THE CLINICALLY SIGNIFICANT CULTURES OF THE OPPORTUNISTIC MICROORGANISMS ISOLATED FROM THE INTESTINES OF THE PATIENTS WITH ALZHEIMER'S DISEASE

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Annotation. *In the microbiological study of the intestinal microflora of the patients with Alzheimer's disease colonization resistance disorders of the mucous membrane of the intestines have been revealed: forming of the multicomponent associations, containing yeast fungi and opportunistic pathogenic bacteria (64.7% of all strains were characterized by the high level of their adhesive activity). Dysbiotic disorders of the intestinal microflora of the patients with Alzheimer's disease were followed by authentically low ($p < 0.05$) quantitative indices of the indigenous microbiota content: *Lactobacillus* spp. $4.48 \pm 0.15 \lg$ CFU/g against the background of the III dysbiosis degree; *Bifidumbacterium* spp. $3.7 \pm 0.2 \lg$ CFU/g p – II dysbiosis degree. In vitro tests of *Lactobacillus* spp. and *Bifidumbacterium* spp., isolated from the patients with Alzheimer's disease, have not revealed any strain with a high degree of adhesion and the high “++++” level of antagonistic activity, concerning opportunistic clinical strains of *E.coli*, *P.vulgaris*, *K. pneumoniae*., isolated in the clinically significant concentration.*

Key words: *Alzheimer's disease, intestinal microbiome, antagonism, adhesion.*

Introduction. In the medical science neurology and microbiology have substantially developed on accurate parallel trajectories, interacting only in pathological situations, when there was a direct infection of the central nervous system. However, in the last decade there was a revolution in biomedicine on understanding that the gut microbiota (trillions of bacteria, living in the intestines) plays a key role in the maintenance of homeostasis and in programming of the main systems of the organism, including human brain as well [1].

The growing volume of researches is concentrated on the coverage of the bidirectional ways of interrelation between colibacilli and the central nervous system, “microbiota-gut-brain” interrelation, however this area is in the initial stage of development [2]. Changes in microbiomes, its metabolites and the “gut-brain” interaction are connected with a wide range of diseases, including various disorders of brain functioning. Studying of a microbiome demands the tight cooperation of doctors with scientists in fundamental sciences and bioinformatics and is the most effective when traditional disciplinary barriers between neurology, gastroenterology and microbiology are destroyed [1].

The digestive tract represents an open circuit, which constantly interacts with

environment microorganisms, generally due to the receipt of food and water. The big area of the mucous barrier of the digestive tract becomes populated by microorganisms practically right after the birth of the person, and during the whole life microbial associations is the major microecological factor for health maintenance [3].

The main physiological functions of the normal microflora are: digestive, power and morphokinetic (epithelium power supply, thermal organism providing, regulation of the vermicular movement of the intestines, differentiation and regeneration of epithelial tissues of the mucous membrane). The process of digestion can conditionally be divided on actually, that one, carried out by the own enzymes of the organism, and symbiotic digestion, occurs with direct participation of the intestinal microflora. Intestinal microflora participates in fermentation of the food components, which were not split earlier, mainly carbohydrates – starch, oligo- and polysaccharides (including cellulose) and also proteins and fats [3].

A set of experimental works are directed to the attempts of the analysis of the ways of communication between the gut and the brain. Bacteria of the intestines influence the central processes through a variety of mechanisms. First, the ability of microbiota to synthesize neurotransmitters (that is, γ -aminobutyric acid, noradrenaline and dopamine) is the important communication medium. Secondly, microflora is of the main value in activation of the immune system, which can play the main role in aging, neurologic disorders and neurodegeneration. At last, microflora synthesizes metabolites, including short-chain fatty acids, which are necessary for intestines, the immune system and potentially – for the health of the brain [1].

Besides, the gut microbiota and brain are connected through the vagus nerve and through the regulation of the main food amino acids, such as tryptophane. Considering a close connection between the gut microbiota and brain, there is no wonder that colibacilli play a key role in neurologic and mental diseases [1].

Alzheimer's disease is the most widespread degenerative disease of the brain. It is supposed that Alzheimer's disease has its polietiological character. In case of the early onset of the illness the major etiological factor is genetic severity. Today three pathological genes, which possession provides 100% risk of getting Alzheimer's disease at the age till 60, are known. They are: the gene, coding protein – the predecessor of amyloid (the 21st chromosome), presenilin-1 (the 14th chromosome) and presenilin-2 (the 1st chromosome). The senile form of Alzheimer's disease (the beginning if after the age of 60) is partially connected with another pathological gene – apoE4 (the 19th chromosome) [4].

Except genetic predisposition, the risk factors of Alzheimer's disease is arterial hypertension, diabetes mellitus, abdominal obesity, the lack of B12 vitamin, depression and craniocerebral trauma in past history, sedentary life, the low level of education and intellectual activity [4].

The concept, according to which microflora can be of great value in Alzheimer's disease pathophysiology is not new, and the idea that amyloid, which congestions is one of key symptoms of Alzheimer's disease, can act as an antimicrobial peptide in the brain, is an fascinating concept [5]. However, according to Koch's postulate it is

ethically difficult to prove if there is an infectious reason of neuroinflammation and neurodegeneration. Like in case of Parkinson's disease, interrelation between intestinal proteins and brain health there is a special attention with understanding that the amyloid-like proteins can be developed by bacteria, that increases α -synuclein pathology in old rats and worms [5].

Studying of the biological properties of the opportunistic microorganisms and representatives of indigenous microflora, isolated from the intestines of the patients with Alzheimer's disease, became the objective of our research.

Materials and methods. During the research the condition of the intestinal microflora of the patients with Alzheimer's disease ($n = 21$) and elderly people – a reference group ($n = 21$) was determined according to methodical instructions [6]. The specific identification of bacteria was carried out according to Bergey's determinant [7]. Studying of the adhesive activity of clinically significant isolates of bacteria was carried out by V.I. Brilis technique and coauthors. [8]. The level of adhesiveness of the studied bacteria was estimated, proceeding from adhesion index of microorganisms (AIM). In particular, the microorganisms, which were non-adhesive had $AIM < 1.75$, the low-adhesive – AIM from 1.76 to 2.5, medium-adhesive – from 2.51 to 4.0 and high-adhesive – when $IAM \geq 4.1$ units.

For studying of the adhesive ability of *Candida* yeast fungi the model of the buccal epithelium with creation of the following conditions was chosen: the temperature of 37 °C, the contact epithelium of the oral cavity of healthy people, pH of the culture medium – Sabouraud dextrose agar, adhesion to the buccal epithelium for all strains was carried out at pH 7, 0.

The antagonistic activity of *Lactobacillus* spp. and *Bifidumbacterium* spp. isolates relatively to clinical isolates of opportunistic pathogenic bacteria (*Escherichia coli*, *Proteus vulgaris*, *Klebsiella pneumoniae*) was carried out by the method of perpendicular strokes (delayed antagonism).

Statistical processing of the obtained results was carried out by means of the Statistica 6.1 software package with the use of parametrical Student's t-test.

Results and discussion. After obtaining results of the microbiological research of intestinal microflora all the patients with Alzheimer's disease were divided into 3 groups: $38.1 \pm 0.04\%$ of the examined patients had dysbacteriosis of the I degree (1 group); $28.6 \pm 0.03\%$ - the II degree (the 2nd group) and $33.3 \pm 0.03\%$ – the III degree (the 3rd group).

Dysbiotic shifts of the I degree, as a part of the intestinal microflora of the patients with Alzheimer's disease (the first group) in $75.0 \pm 0.1\%$ of cases had their latent, compensated character, which was characterized by minor quantitative changes in optional and anaerobic and the indigenous (bifido-, lactoflora) parts of the intestinal microflora and also an absence of the intestinal dysfunctions according to the anamnesis. In other patients of this group ($25.0 \pm 0.1\%$) in past history the intestinal dysfunction, which was shown in the form of diarrhea, was registered.

The patients of the 2nd group with the II degree of dysbiotic changes ($28.6 \pm 0.03\%$)

showed the subcompensated form of dysbiotic disorders, which was characterized by the quantitative and qualitative changes of *Escherichia coli* population (in comparison with the indices of the reference group), namely the quantitative increase in *Escherichia coli* with the low enzymatic activity (up to 7-10% of the total number of *E. coli*) and a reliable decrease ($p < 0.05$), in comparison with the indices of the reference group, *Escherichia coli* population degree of the intestines with the normal enzymatic activity to $5.7 \lg \text{CFU/g}$.

$33.3 \pm 0.03\%$ of the patients of the 3rd group (decompensation form of dysbiosis) showed a reliable decrease in the degree of obligate anaerobic bacteria population in the intestines – *Bacteroides* spp., *Fusobacterium* spp., *Peptostreptococcus* spp., ($p < 0.05$), in comparison with the indices of the reference group and these indices were 2 - 3.5 times lower than the indices of the reference group. It should be noted that in $71.4 \pm 0.02\%$ of such patients a reliable increase ($p < 0.05$) in the population degree of *Clostridium* spp., in the intestines, namely *C. difficile* up to $6 \lg \text{CFU/g}$. (the index of the reference group is $\lg 5 \text{CFU/g}$.) was registered. Besides, in the patients of the 3rd group the intestinal microflora was characterized by a sharp qualitative and quantitative (< 0.05) reduction of *Escherichia coli* population degree with the normal enzymatic activity to $4.2 \lg \text{CFU/g}$ (the index of the reference group $7-8 \lg \text{CFU/g}$) and the quantitative prevalence of opportunistic microorganisms: *Klebsiella* spp.; *Proteus* spp.; *Citrobacter* spp.; *Enterococcus* spp., *S. aureus*, *Morganella* spp., *Providencia* spp., *Hafnia* spp., *Candida* spp. – the total population index was $\geq 9 \lg \text{CFU/g}$ (the total exponent of the population of the intestines of people of the reference group was $4-4.5 \lg \text{CFU/g}$).

An important role in formation of biocenoses of a human body belongs to opportunistic microorganisms, which specify a considerable part of the normal microflora of the organism. Performing various functions, these microorganisms are quite often capable to cause various pathological processes not only in the biotopes, but also in other organs and systems. It is known that the representatives of the normal microflora, possessing certain mechanisms of adaptation, are capable to cause diseases against the background of the immunity decrease. In this regard they can be called opportunistic; approaches to studying of the factors of colonization have to be similar to those ones, when studying the corresponding factors in pathogenic bacteria [9].

The value of adhesive characteristics of the bacteria for a macroorganism can be considered from two positions. On the one hand, the adhesive potential of the indigenous microflora is one of the factors of realization of colonization resistance of the mucous membrane of the intestines and prevention of joining of pathogenic microorganisms to the receptors of the mucous membrane. On the other hand, in case of development of dysbiotic disorders the adhesive properties of the opportunistic microflora are considered as a pathogenicity factor, as they allow the microbes to be fastened up on the surface of the skin, mucous membrane and to colonize this biotope, reaching a certain population level [10-11].

The results of specifying the indices of *Lactobacillus* spp. ($N = 41$) and *Bifidobacterium* spp. ($N = 33$) adhesion to erythrocytes of blood 0 (1) of the blood

type, isolated from the patients with a different degree of dysbiotic changes showed that there were no any strain with a high adhesion degree (Tab. 1).

Table 1

Distribution of the cultures of indigenous microflora, isolated from the intestines of the patients with Alzheimer's disease, according to their adhesive properties

Studied strains	Adhesion degree		
	low-adhesive	medium-adhesive	high-adhesive
	The number of strains (%)		
Lactobacillus spp. (n = 41)	65,9	34,1	0
Bifidumbacterium spp. (n = 33)	42,4	57,6	0

In the patients with Alzheimer's disease against the background of various disorders of colonization resistance of the mucous membrane of the intestines, which is mediated by the representatives of the indigenous microflora, formation of the multicomponent associations are observed. They consist of yeast fungi and opportunistic pathogenic bacteria and are evident in clinically-significant quantities (the population degree authentically ($p < 0, 05$) was higher in comparison with the same indices of the patients of the reference group. The results of determination of the adhesive properties of the studied strains of opportunistic microorganisms are shown in table 2.

The analysis of the results of the study on the quantitative level of opportunistic microflora has showed that the population degree of such microorganisms in the intestines was higher in the patients of the 3rd group in comparison with the 2nd one. So, in the intestines of the patients of the 2nd group the population degree of the representatives of the opportunistic microorganisms averaged 5.7 lg CFU/g (from 3 to 7 lg), and the patients of the 3rd group had 7.7 lg CFU/g (from 5.5 to 10 lg), despite a high share in the population of strains with the high and medium adhesion ability (tab. 2). At the same time the content of Lactobacillus spp. and Bifidumbacterium spp. authentically decreased ($p < 0.05$) in comparison with the indices of the reference group. So, the population degree of Lactobacillus spp. in the intestines of the patients with Alzheimer's disease and with the III dysbiosis degree made 4.48 ± 0.15 lg CFU/g, and Bifidumbacterium spp. – the patients with the II dysbiosis degree – 3.7 ± 0.2 lg CFU/g.

In particular, the average AIM values of the "intestinal" isolates of the indigenous microflora was following: Lactobacillus spp., isolated from the patients with Alzheimer's disease, having the medium adhesive potential (AIM value = 3.61 ± 0.05 bact./er.), were isolated from the patients with I and II degree of dysbiotic changes of the intestines; clinical Lactobacillus spp., isolates with the low adhesive activity (AIM value = 1.93 ± 0.03 bact./er.), were isolated from the patients with the III intestinal dysbios degree. Clinical Bifidumbacterium spp. isolates, which had their low adhesive activity (AIM value = 2.12 ± 0.03 bact./er.), were isolated from the patients with I and II degree of

dysbiotic changes of the intestines.

Table 2

Distribution of the clinically significant strains of opportunistic microorganisms, isolated from the intestines of the patients with Alzheimer's disease with their adhesive properties

Studied strains	Adhesion degree			
	low-adhesive	medium-adhesive	high-adhesive	the average AIM (adhesion index of microorganisms) (M±m)
	the number of strains (%)			
<i>Klebsiella pneumoniae</i> (n = 12)	0	8,3	97,1	4,6±0,4
<i>Escherichia coli</i> with the love enzyme activity (n = 12)	0	25,0	75,0	4,8±0,3
<i>Proteus</i> spp. (n = 11)	0	27,3	72,7	3,9±0,3
<i>Citrobacter</i> spp. (n = 9)	11,1	22,2	66,7	3,7±0,2
<i>Candida</i> spp. (n = 9)	0	44,4	55,6	3,7±0,3
<i>Enterococcus faecalis</i> (n = 8)	0	37,5	62,5	4,1±0,2
<i>Staphylococcus aureus</i> (n = 6)	0	16,7	83,3	3,6±0,2
<i>Morganella</i> spp. (n = 5)	0	100	0	2,8±0,2
<i>Clostridium difficile</i> (n = 4)	0	25,0	75,0	4,1±0,2

The analysis of studying of the quantitative level of opportunistic microflora has showed that the obtained results disclose the further prospects of the researches, directed to studying of the mechanisms of interference (replacement) of the dominant microsymbiont by opportunistic microflora in the patients with Alzheimer's disease due to the use of the personalized therapy of "Autoprobiotic".

When regarding the results of the method of delayed antagonism the following results have been obtained: the greatest efficiency of the action was registered concerning *E. coli* with the low enzymatic activity in *Lactobacillus* spp. and *Bifidumbacterium* spp. isolates (growth inhibition zone is 9.4 ± 0.5 mm and 5.7 ± 0.5 mm respectively); concerning *Proteus* spp. strains, isolated from the excrements in the quantity ≥ 6 lg CFU/g, the antagonistic action was shown by *Lactobacillus* spp. isolates as "++" (growth inhibition zone is 4.3 ± 0.5 mm) and as "+" *Bifidumbacterium* spp. isolates. (growth inhibition zone is 2.1 ± 0.5 mm); concerning *K.pneumoniae* strains, *Lactobacillus* spp. isolates showed the weak level of antagonism (growth inhibition zone is 1.8 ± 0.5 mm), and among *Bifidumbacterium* spp. isolates 51.5% of strains did not show any antagonistic activity. Thus, the higher antagonistic activity, concerning opportunistic gram-negative representatives of *Enterobacteriaceae* family was shown by *Lactobacillus* spp.

Conclusions. 1. In the intestines of the patients of the 2nd group the population degree

of the representatives of the opportunistic microorganisms averaged 5.7 lg CFU/g (from 3 to 7 lg), and the patients of the 3rd group had 7.7 lg CFU/g (from 5.5 to 10 lg), despite a high share in the population of strains with the high and medium adhesion ability.

2. After studying of the adhesive potential of the opportunistic microorganisms, isolated from the intestines of the patients with Alzheimer's disease in clinically-significant concentration it has been determined that 64.7% of all the strains were characterized by the high level of their adhesive activity, among them there were 91.7% of *K.pneumoniae*, 83.3% of *S.aureus*, 75% of *E.coli* with their low enzymatic activity and *C.difficile*, 72.7% of *Proteus spp.*, 66.7% of *Cirtobacter spp.*, 62.5% of *E.faecalis*, 55.6% of *Candida spp.*

3. So, the colonization level of the population degree of *Lactobacillus spp.* in the intestines of the patients with Alzheimer's disease and with the III dysbiosis degree made 4.48 ± 0.15 lg CFU/g, and *Bifidumbacteium spp.* – the patients with the II dysbiosis degree – 3.7 ± 0.2 lg CFU/g.

4. Critically low ($p < 0.05$) quantitative indices of *Lactobacillus spp.* were registered in the patients with Alzheimer's disease with the III dysbiosis degree ($\lg 4.48 \pm 0.15$ CFU/g), and *Bifidumbacteium spp.* – the patients with the II dysbiosis degree ($\lg 3.7 \pm 0.2$ CFU/g).

5. In vitro tests of *Lactobacillus spp.* and *Bifidumbacteium spp.*, isolated from the patients with Alzheimer's disease, have not revealed any strain with a high degree of adhesion and the high “++++” level of antagonistic activity, concerning opportunistic clinical strains of *E.coli*, *P.vulgaris*, *K. pneumoniae*., isolated in the clinically significant concentration.

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EVALUATION OF THE INTEGRATED INDICATOR "QUALITY OF LIFE" IN CHILDREN AGAINST THE BACKDROP OF GASTRITIS AND DUODENITIS TREATMENT

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Annotation. *The article presents a comparative analysis of modern questionnaires for study of the quality of life indicators in children. Quality of life (QOL) is a necessary component of a comprehensive assessment of the patient's condition and includes information on all major areas of human activity. The quality of life varies with time depending on the condition of the patient, i.e. assessment of the integral indicator "quality of life" allows continuous monitoring of the patient's condition and correction of therapy if necessary. A particularly valuable characteristic of the QOL as a comprehensive examination tool is the direct participation of the patient in the assessment of his condition. The advantages of using the GSRS (Gastrointestinal Symptom Rating Scale) questionnaire in children with gastritis and duodenitis to assess the indicators of quality of life are shown.*

Key words: *quality of life, questionnaires, SF-36, Gastrointestinal Symptom Rating Scale, gastroenterology.*

It is known that in the late 70s - early 80s of the last century they began to use the indicator "quality of life" in foreign studies to assess the results of treatment. The basic concept of the Quality Adjusted Life Years (QALYr's) indicator was developed on the main components, namely malaise and a total assessment of social opportunities (ability to self-care, etc.), which change with the patient's age. The concept of "Health related quality of life (HRQOL)" [1]. Thus, this concept allows us to distinguish aspects of a medical nature from a broad, general definition of quality of life and gives opportunities of multivariate analysis of physiological, psychological, emotional and social problems of the sick person, taking into account the therapy.

Particular attention should be paid to the study of the quality of life in children. Today, the assessment of somatic status only in children of different age groups and in a number of pathological conditions is insufficient and not always objective. In this regard, the trend towards the definition of quality of life [2] is extremely relevant.

Interest in studying QOL in pediatrics arose in the 80s of the 20th century, when this indicator was assessed in adults in many clinical studies. According to foreign scientists, the number of studies of QOL in pediatrics is significantly less than in the adult population, although there is a tendency to a constant increase in the number of publications, which indicates the undoubted relevance of this problem [3].

At present, the situation with the state of health of children in Ukraine can be viewed

as a crisis, and negative trends in the children's health indicators persist and grow. So, no more than 3-10% of children can be considered healthy, there is a predominant increase in chronic pathology, the frequency of which has increased by 22% over the past 10 years. Along with somatic, the neuropsychic and reproductive health of children, their physical development worsens, and the level of disability increases [4].

There is also no uniform definition of QOL in pediatrics. By definition of J. Bruil "Quality of life is a child's perception and assessment of various areas of life that matter to him, and those feelings that are associated for him with problems in functioning" [5], in turn Novik A. A. et al. consider that "The quality of a child's life is an integral characteristic of a child's health, based on his subjective perception" [6].

Nowadays, traditional methods of examination provide a one-sided view of the disease and the effectiveness of treatment, but do not allow to evaluate the psychological, social maladjustment of the child, his attitude to his condition. Inclusion of QOL assessment in the survey program can solve this problem, which will improve the quality of medical care. According to M. Bullinger (2006), children's QOL may be the end point in assessing the effectiveness of medical interventions in the field of prevention, treatment and rehabilitation [7].

The following are the main areas of application of the quality of life indicator in pediatrics:

- medical and social research, in particular: the assessment of the quality of life of healthy children in order to develop optimal criteria for this indicator, which will highlight the risk groups and compare the quality of life of healthy and sick children; identification of regional features of QOL; development and comprehensive justification of new preventive programs; risk groups monitoring and evaluating the effectiveness of preventive measures;

- study of the various diseases effect on the quality of life in children, allowing to assess the child's individual response to the disease, the degree of its maladjustment, the patterns of changes in the indicator of quality of life depending on the nosological form, and also at different stages of the disease;

- use of the QOL indicator as an individual monitoring method to assess the effectiveness of the therapy and its correction;

- assessment of QOL as an additional criterion for the prognosis of the course and outcome of the disease, especially in palliative medicine;

- examination of new methods of treatment, drugs - according to international criteria when conducting randomized studies in the case of the same clinical efficacy of different methods, preference is given to the method of treatment in which there is the most expresses improvement in patients' QOL;

- use of the QOL criterion as a component of clinical and economic calculations to substantiate the economic feasibility of various medical technologies use [1].

As can be seen, the main areas of the QOL indicator use in pediatrics are similar to those in the adult population, only greater emphasis is placed on studying QOL of various contingents of healthy children introducing QOL as a screening technique in

preventive health care programs.

In Europe and America special attention is paid to the assessment of the quality of life of schoolchildren. Most authors found that children under 12 years of age have QOL higher than adolescents, while girls experience a more rapid decline in age than boys, especially psychosocial health and self-esteem rates [8].

Foreign authors point to the need to introduce QL assessment in schools as a criterion for children's health, and it is proposed to monitor by school nurses [9].

The quality of life related to health depends on the type and level of medical care. For example, in California, a prospective cohort study was conducted, which resulted in an increase in the availability of medical care to significantly improve the quality of life associated with health in adolescents (Seid M. et al., 2006) [10]. At the same time, the level of satisfaction with adolescents with medical assistance was directly proportional to the level of the "Psychosocial Health" scale. In addition, the QOL estimation can be used to calculate the medical needs of the children population.

A number of studies are devoted to the influence of various factors on the quality of life of children. It has been established that the poor physical health of children reduces their overall satisfaction with life. The results of the KIDSCREEN multicenter project conducted in Europe showed that the most significant socio-economic factors affecting the quality of life associated with children's health are parents' education and family income. In children of parents with higher education QOL is higher, it also increases with an increase in family well-being, especially in adolescents.

Many works were undertaken to compare the quality of life of healthy and sick children. All authors agreed that a chronic disease, regardless of nosology contributes to lower QOL compared with healthy children. The obtained facts once again confirm the need for preventive measures among the child population.

One of the most popular areas is the study of QOL in children with various chronic diseases. The spectrum of the nosologies described is very wide: oncology, ENT diseases, allergology, neurology, traumatology, nephrology, dermatology, gastroenterology, dentistry, psychiatry, pulmonology, endocrinology, cardiology, rheumatology, infectious diseases, etc. Questionnaires are used for studying the quality of life. All known QOL questionnaires today can be divided into two groups:

The main non-specific questionnaires for assessing QOL:

1. Questionnaire for assessing the quality of life of the European Group for Studying the Quality of Life (EUROQOL - EuroQOLGroup);
2. Brief form of health assessment (Medical Outcomes Study-Short Form - MOS-SF 36) - 8 scales, 36 questions;
3. Psychological General Well-Being Index;
4. Sickness Impact Profile - 12 categories, 136 questions;
5. Nottingham Health Profile - 6 parameters for evaluating experiences, 38 questions; 7 parameters for assessing daily life, 7 questions;
6. Hospital Anxiety and Depression Scale - HAD;
7. Quality of Well-Being Index - QWBI;

8. McMaster Health Index Questionnaire (MHIQ);
9. Child Health Questionnaire (CHQ);
10. Questionnaire for assessment of QOL in pediatrics (PedsQL);
11. The Generalized Scale of Life quality (Overall Quality of Life Scale);
12. Quality of Life Index [1].

The intensity of foreign scientific research on the problem of QOL studying in children has increased dramatically in recent years. It is believed that the achievement of the effect of QOL improving may be the main and only goal of medical and social interventions in a large number of patients, even in the absence of positive dynamics on the part of clinical and functional parameters. Our attention was attracted by the peculiarities of changes in the quality of life in children with gastritis and duodenitis, which require other methodological approaches to the study of the quality of life.

The main specific questionnaires for evaluating QOL in gastroenterology:

1. Gastrointestinal Symptom Rating Scale – GSRS;
2. Gastrointestinal Quality of Life Index – GIQLI) is often used to evaluate QOL after operations on the digestive organs;
3. Well-Being-Index for Surgical Patients - WISP, designed to evaluate QOL in patients after abdominal operations;
4. Visick I – IV scale for comparative assessment of resection and organ-saving treatment methods in surgical gastroenterological practice;
5. Gallstone Impact Checklist (GIC) - a specific questionnaire for patients with gallstone disease [11].

It is known that in the gastroenterological practice 2 questionnaires are most often used: non-specific - SF-36 and specific - GSRS.

The choice of the questionnaire is always determined by the goals and objectives of the study. General questionnaires necessarily include the following components: physical - activity, mobility, independence in life and self-care, etc., psychological - emotional background, cognitive ability, social - relationships with parents, peers, learning success, social role, self-assessment, etc. in other words, a method for evaluating QOL related to health makes it possible to assess the processes of adaptation of a person of any age in conditions of acute and chronic diseases

The SF-36 questionnaire is a non-specific questionnaire for assessing the quality of life of a patient, widely used in quality of life research in European countries and in the United States. It was established to assess the quality of life in Italy, France, Australia and the general population of the United States. Studies of individual groups of people were conducted in European countries and in the USA, and results were obtained on standards for a healthy population and for patients with various chronic diseases (with distribution into groups according to age and sex) [12]. The general questionnaire SF-36 is currently used in 95% of scientific studies on the study of QOL in various diseases. It consists of 36 questions grouped into eight scales: physical functioning, role-playing, body pain, general health, vitality, social functioning, emotional state and mental health. The indicators of each scale are compiled in such a way that the higher the value of the

indicator (from 0 to 100), the better the score on the chosen scale. Two parameters are formed from them: psychological and physical components of health. The questionnaire reflects the general well-being and degree of satisfaction with those aspects of human life that are affected by health.

Advantages of the SF-36 questionnaire:

- used to assess the quality of life in any disease;
- it is possible to compare the patient's quality of life indicators according to the SF-36 questionnaire for the relevant groups;
- evaluates the quality of life of patients in a complex (including social and psychological disorders).

Disadvantages of the SF-36 questionnaire:

- the questionnaire includes 36 questions, 8 scales - the time of filling is 10-15 minutes;
- difficulty in recoding data and calculating scales;
- there is no single indicator to determine the minimum clinically significant changes on standardized scales;
- license for commercial use.

The GSRS questionnaire (Gastrointestinal Symptom Rating Scale) was developed by the Department of QOL study at ASTRA Hassle (Wiklund I., 1998) and is used to evaluate QOL of patients with gastrointestinal diseases. The Russian-language version of the GSRS Questionnaire was created by researchers of the Inter-ethnic Center for the Study of QOL (MTSIKZH, St. Petersburg), in 1998 it was tested in the study of QOL of 2000 residents of St. Petersburg. The Russian version of the GSRS gastroenterological questionnaire is reliable, valid and sensitive. The questionnaire consists of 15 items, which are combined into 6 scales: abdominal pain, gastroesophageal reflux (or reflux syndrome), diarrheal syndrome, dyspeptic syndrome, constipation syndrome, scale of total measurement. Evaluation of indicators is carried out on a 7-point scale, with higher values corresponding to greater severity of symptoms and lower QOL [12].

It's known that changes in patients' QOL is assessed based on ongoing treatment. So there is a large number of medicine manufactured by various pharmaceutical companies under various names in all countries of the world today. Therefore, the problems connected with the wide distribution of generic medicines are becoming more and more relevant for the doctor.

Due to it, it's necessary to specify the distinctive characteristics and attributes of generic drugs:

- Copying of the original medicine;
- The entry on the market after the expiration date of the original drug's patent, when there is already a great clinical experience with the original medicine application;
- Lack of medicine studies in all 4 phases (I-IV) of clinical trials;

It's a common problem for the original and generic medicines that the development and production of the medicinal substance as well as the receipt of the manufactured medicine can be carried out in different countries. Very often the production of the

medicinal substance takes place in the developing countries (due to economic reasons) and the manufacture of finished drug forms happens in countries with the highest rating in pharmaceutical industry.

Thus, the use of medicines can also affect the indicators of QOL changes in terms of cost, namely, the cost of pharmacotherapy.

Conclusions. Thus, we have carried out a comparative analysis of questionnaires for studying the quality of life indicator in children. It was established that on the basis of the GSRS questionnaire (Gastrointestinal Symptom Rating Scale) it is possible to study the characteristics of changes in the quality of life in children with gastropathology in detail, taking into account treatment tactics and financial costs.

Prospects for further research. The next stage of our study is to assess the quality of life indicators in children with gastritis and duodenitis with various pharmacotherapy regimens and conduct a pharmacoeconomic assessment of the cost-effectiveness method.

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